retro GAMER

Collection

VOLUME 8

The ultimate guide to classic videogaming

AMSTRAD | COMMODORE | SEGA | NINTENDO | ATARI | SINCLAIR | APPLE | SONY | COIN-OP | MOBILE

PS4
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Welcome to retro* GAMER Collection

The eighth Retro Gamer Collection is packed full of content that has been carefully selected from award-winning magazine Retro Gamer. We take a look back at the development of classic titles such as Space Invaders, Breakout and Baldur's Gate, while charting the history of storied franchises such as Final Fantasy, Street Fighter and Starfox. We've also got candid interviews with industry legends like Sid Meier and Mark Turmell as they discuss their careers and favourite games, as well as collector's guides to the Sega Master System and Amiga 500. Whether you want to find out more about iconic videogames or learn about any unappreciated classics that you may have missed, the Retro Gamer Collection Volume 8 is your essential guide. So sit back, put your feet up, and get ready for some serious nostalgia.

retro GAMER Collection

Imagine Publishing Ltd
Richmond House
33 Richmond Hill
Bournemouth
Dorset BH2 6EZ
☎ +44 (0) 1202 586200
Website: www.imagine-publishing.co.uk
Twitter: @Books_Imagine
Facebook: www.facebook.com/ImagineBookazines

Head of Publishing
Aaron Asadi

Head of Design
Ross Andrews

Production Editor
Dan Collins

Senior Art Editor
Greg Whitaker

Design
Perry Wardell-Wicks

Photographer
James Sheppard

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CONTENTS

The ultimate guide to classic gaming

THE BIG FEATURE

8 Invasion of the Coin Snatcher
74 The Story of Breakout
90 Inside the BBC Micro
162 The Greatest Videogame Bosses
182 SCUMM Origins

THE CLASSIC GAME

16 Sonic 3
88 Wonderboy III
168 Pang

THE MAKING OF

18 Adventure
64 Lode Runner
96 Baldur's Gate
130 Carrier Command
158 Warcraft
190 Star Castle

COLLECTOR'S GUIDE

22 Sega Master System
146 Amiga 500

RETRO REVIVAL

34 Theme Hospital
100 Grand Prix
144 Kirby's Dream Course
200 Starstrike II

MINORITY REPORT

36 Atari 8-bit Special
108 Maze Of Death
176 Mega-CD Special

GAMING LEGENDS

40 Shigeru Miyamoto
138 Sid Meier

FROM THE ARCHIVES

46 Bizarre Creations
110 Naughty Dog
202 Digital Integration

THE UNCONVERTED

52 Devil World
136 Mystic Warriors

HISTORY OF

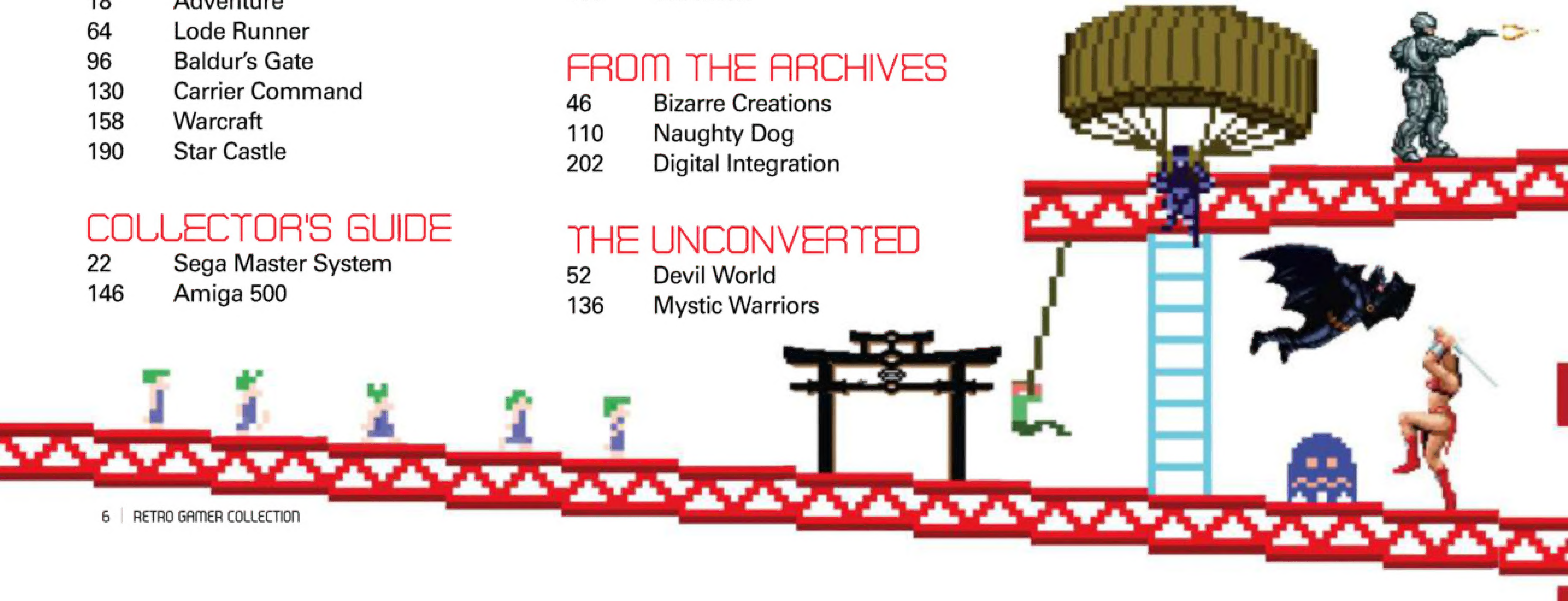
54 Final Fantasy
102 Pitfall!
194 Starfox

FUTURE CLASSIC

72 Portal
128 Ico
180 Mirror's Edge

IN THE CHAIR

82 Jeff Minter
170 Mark Turmell



RETROINSPECTION

IN-DEPTH FEATURES

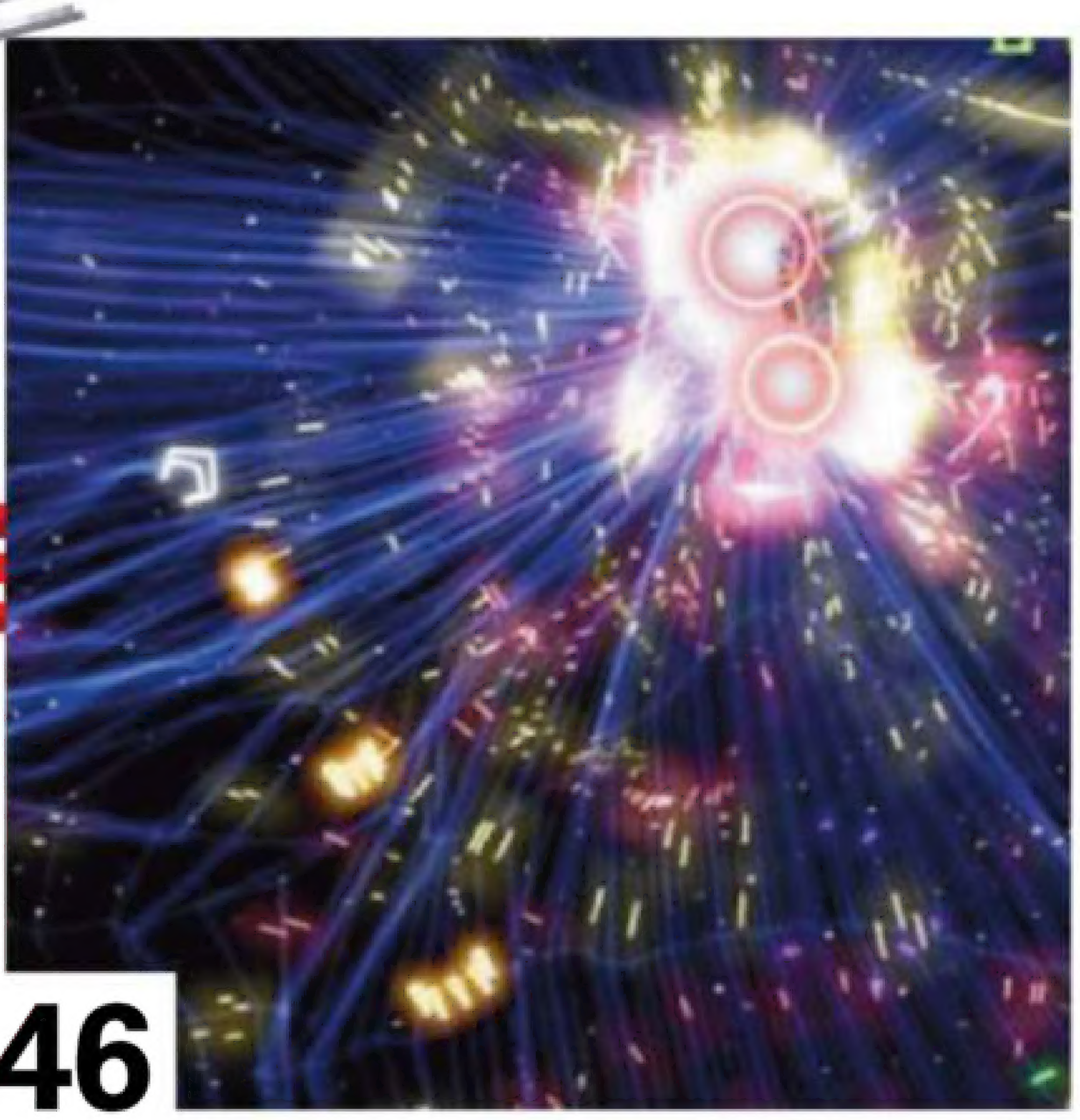
8

138

162

194

PEPPY
Do a barrel roll
(Z or R twice)!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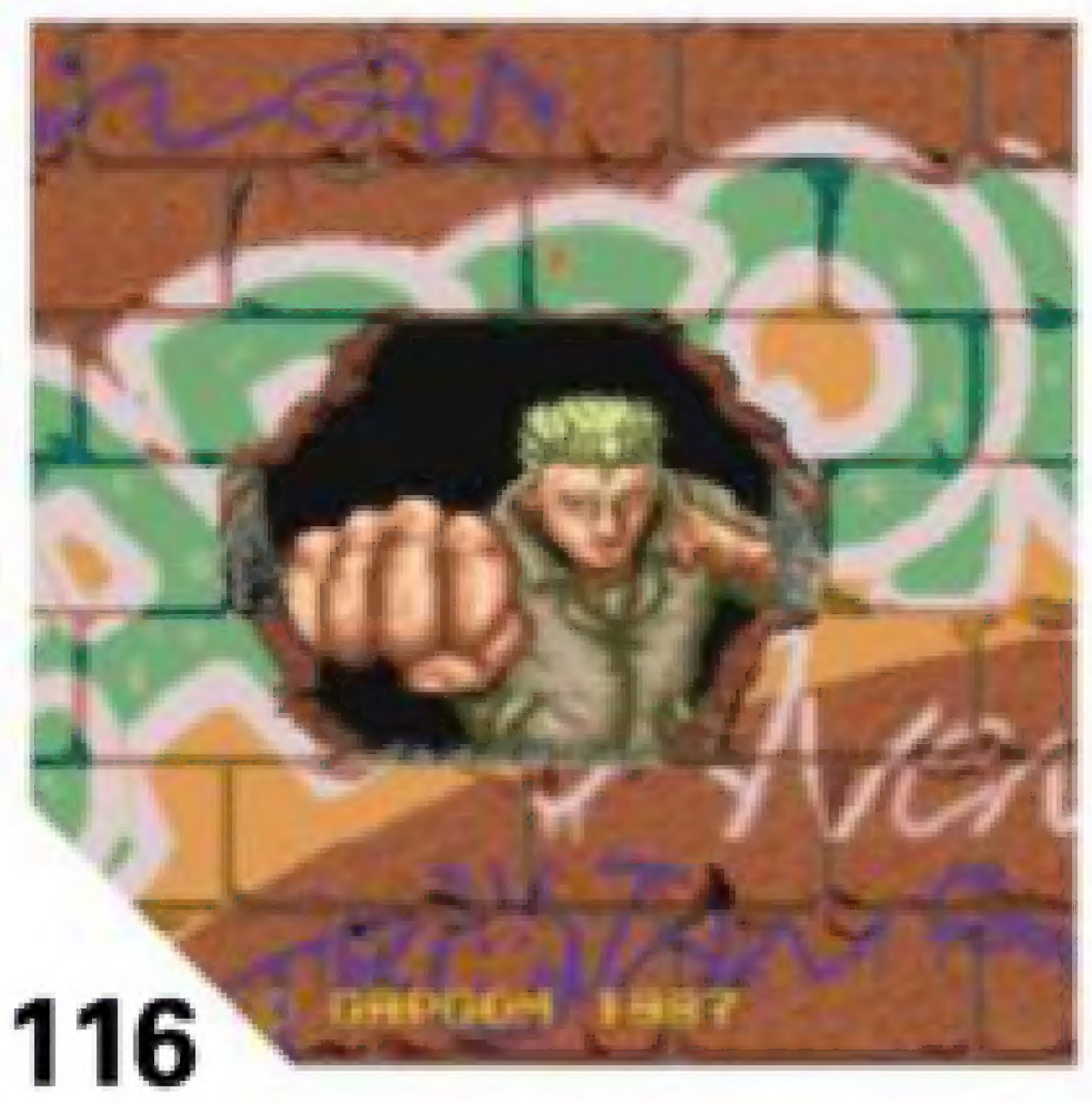

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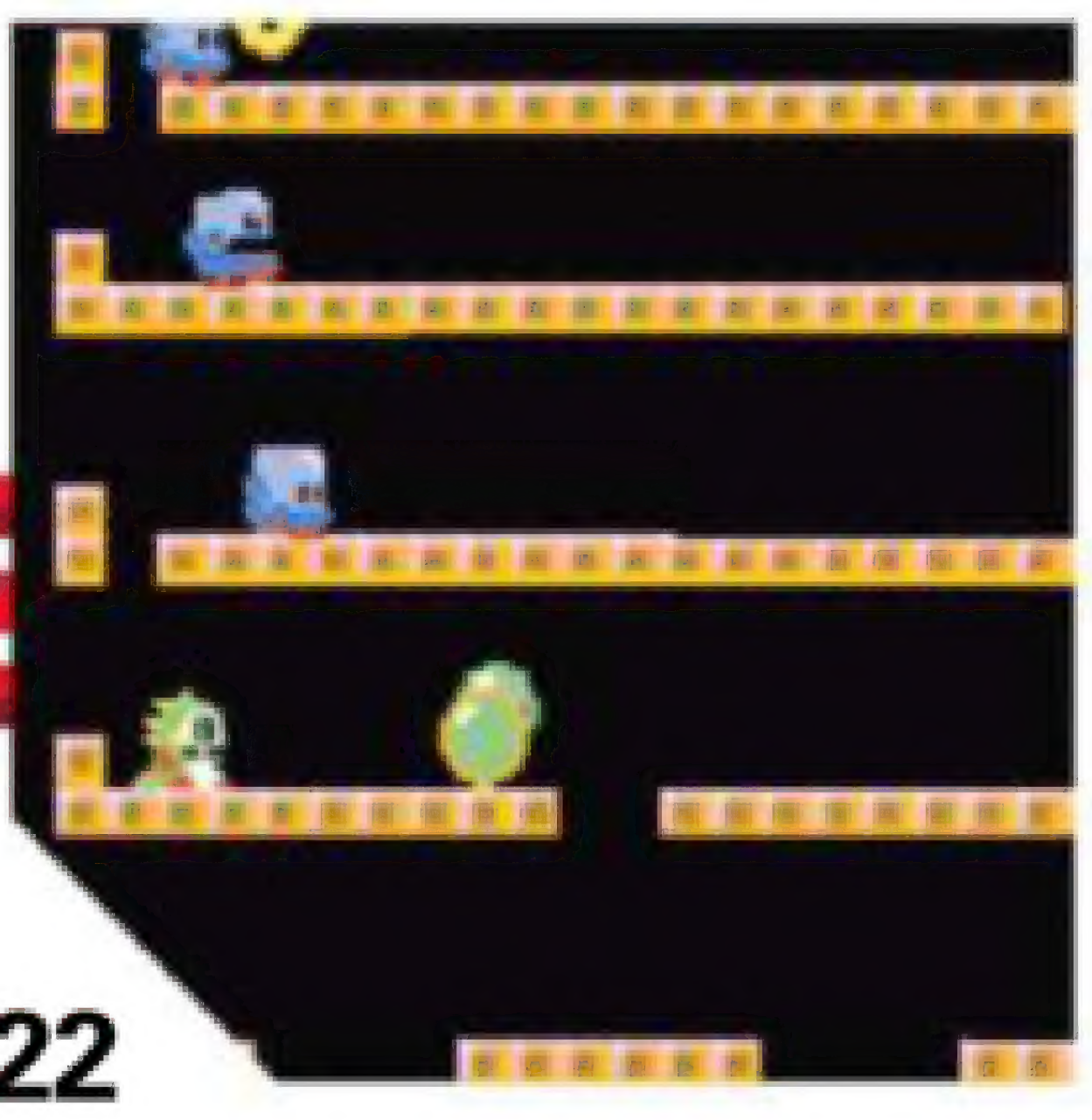
18

88

130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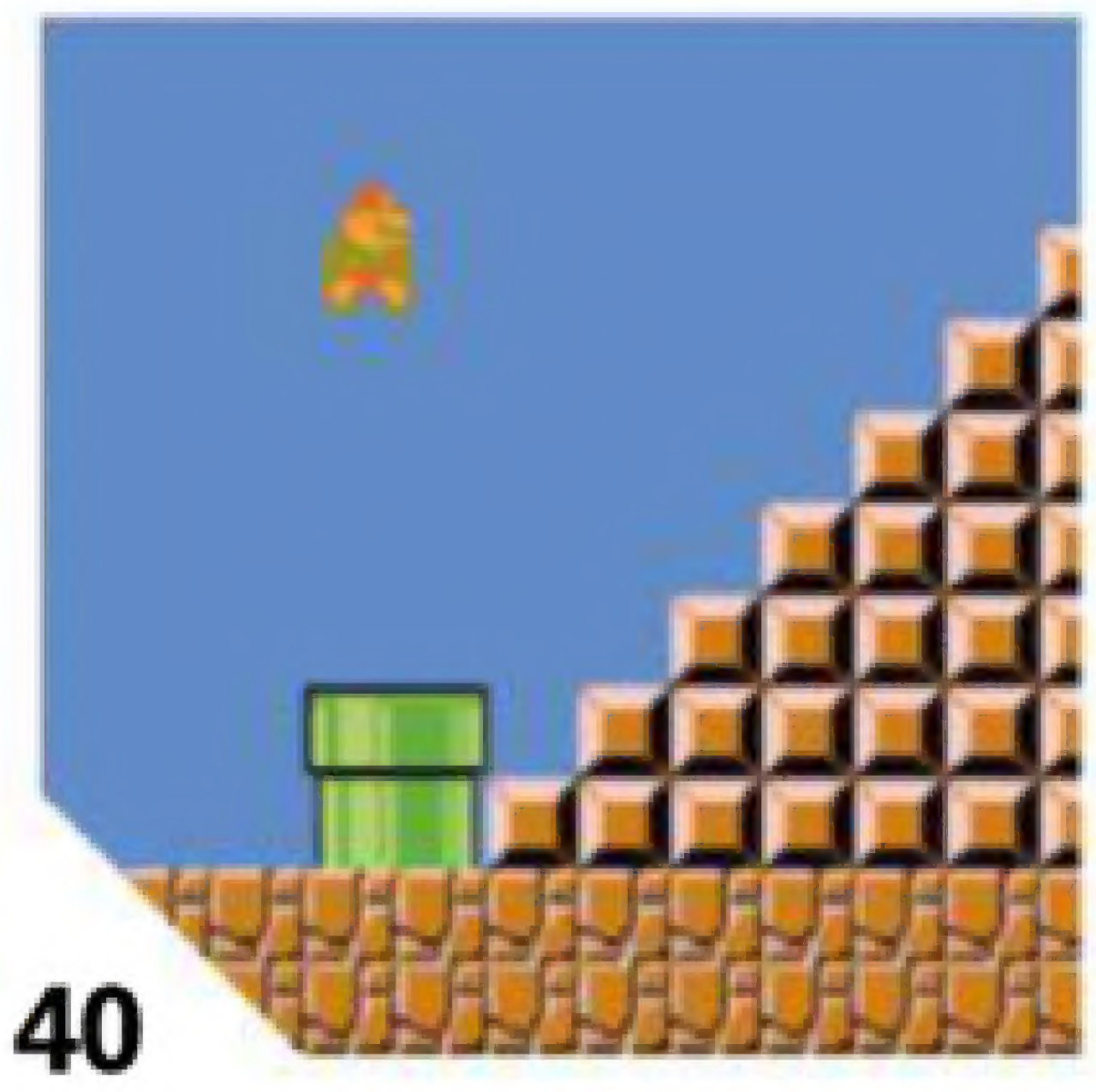
36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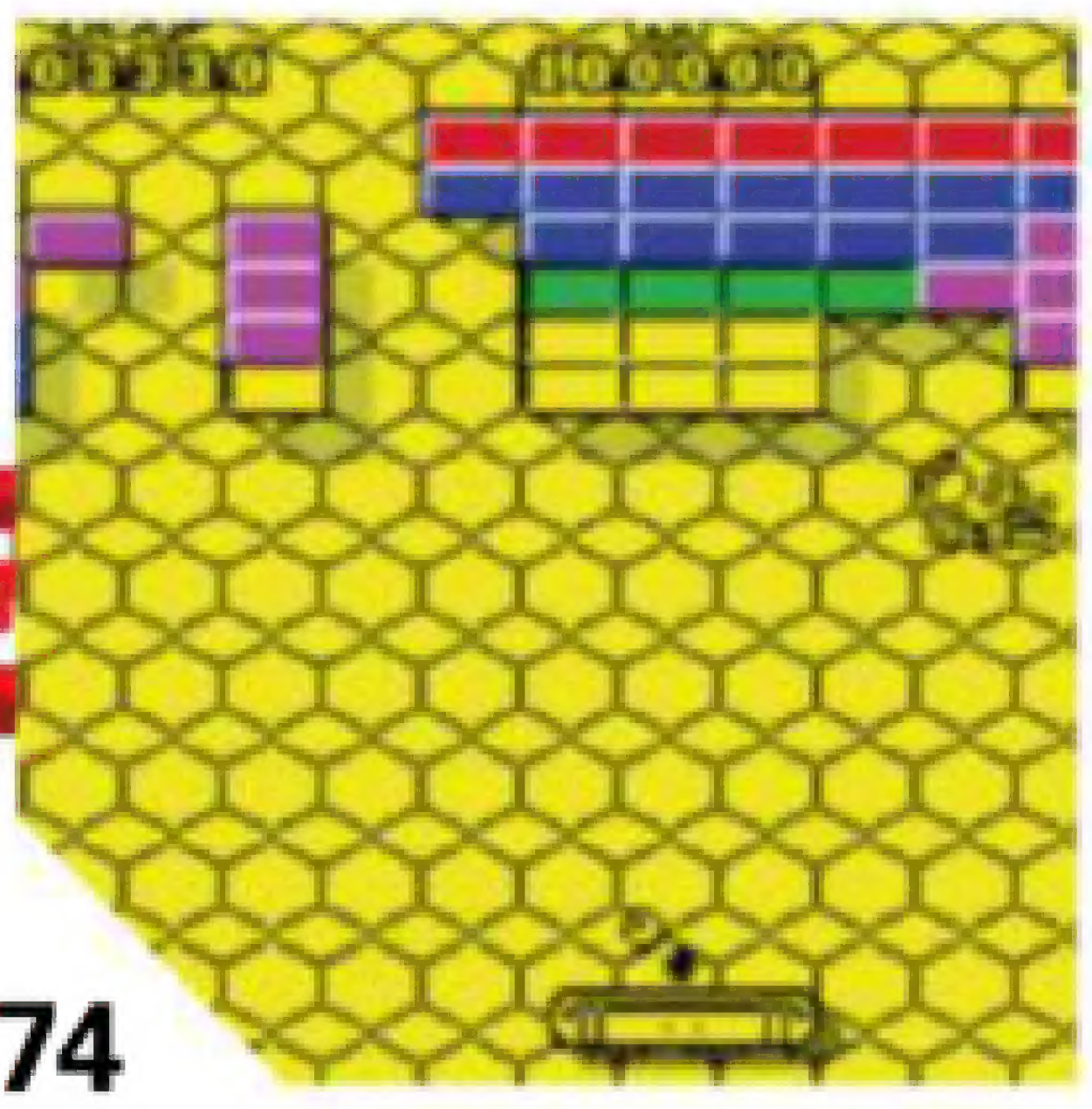
54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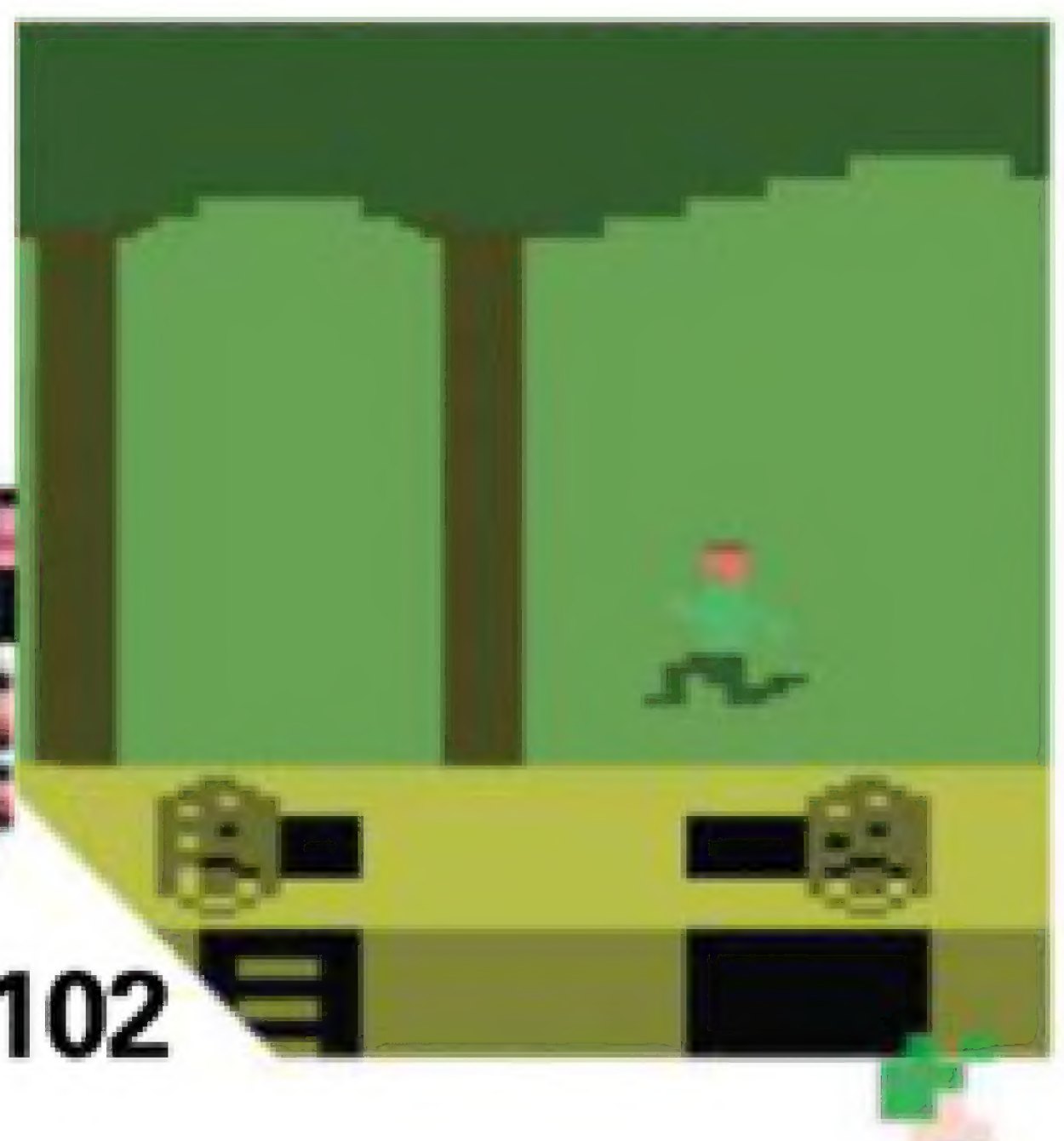
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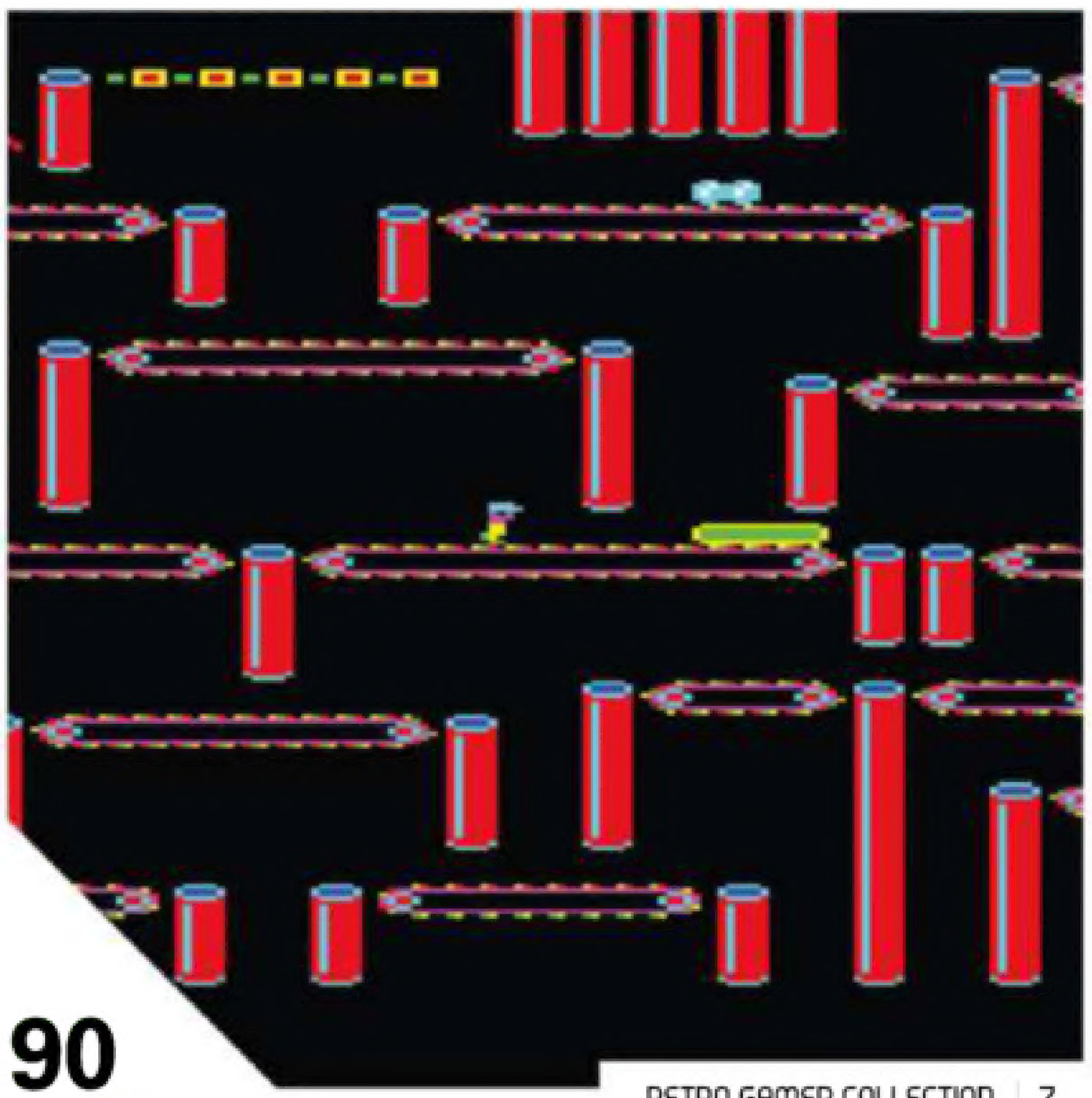
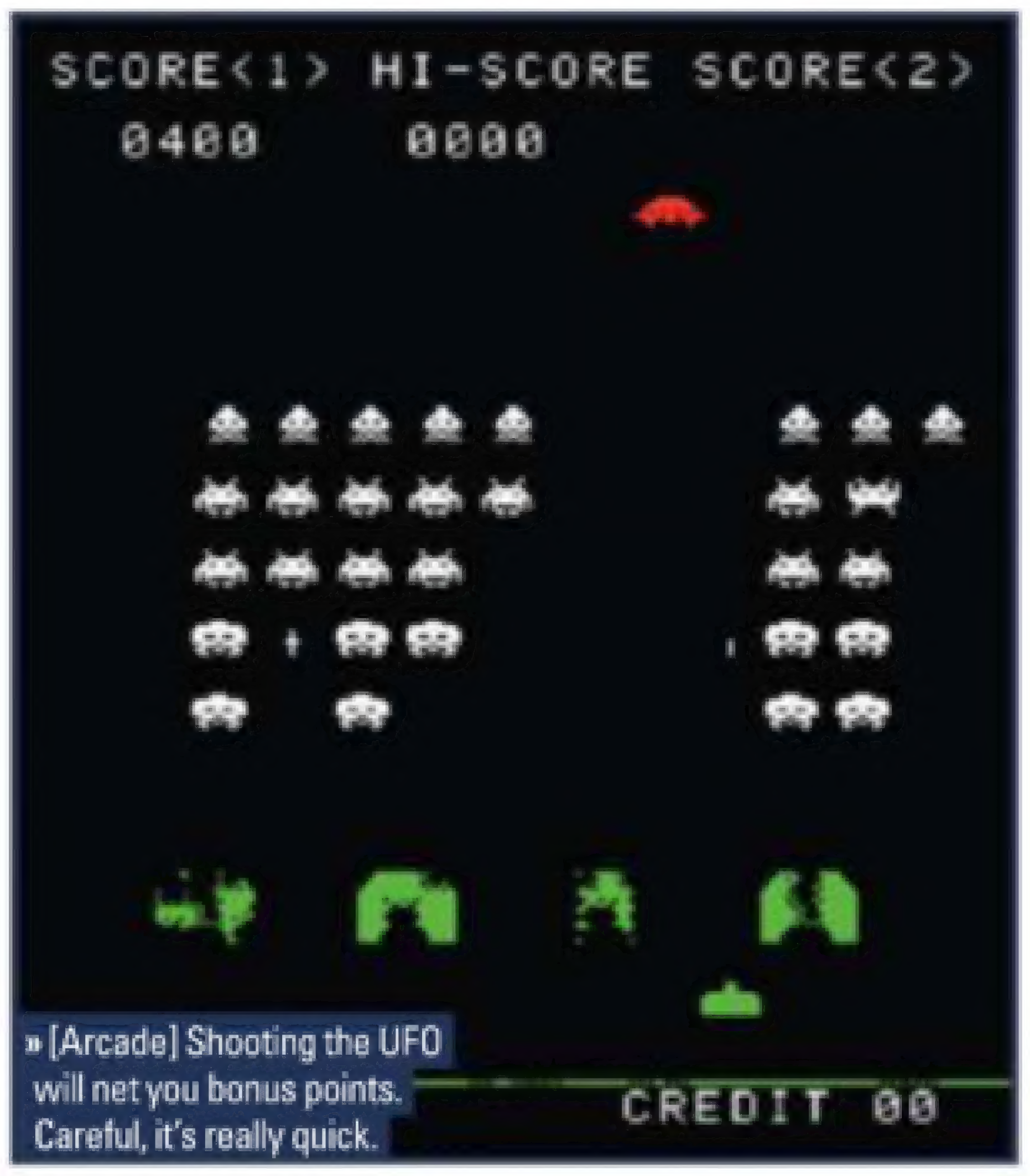

90

INVASION OF THE COIN SNATCHER

WE SPEAK TO SPACE INVADERS' CREATOR TOMOHIRO NISHIKADO AND LOOK BACK AT THE CULTURAL AND INDUSTRY IMPACT OF HIS GAME

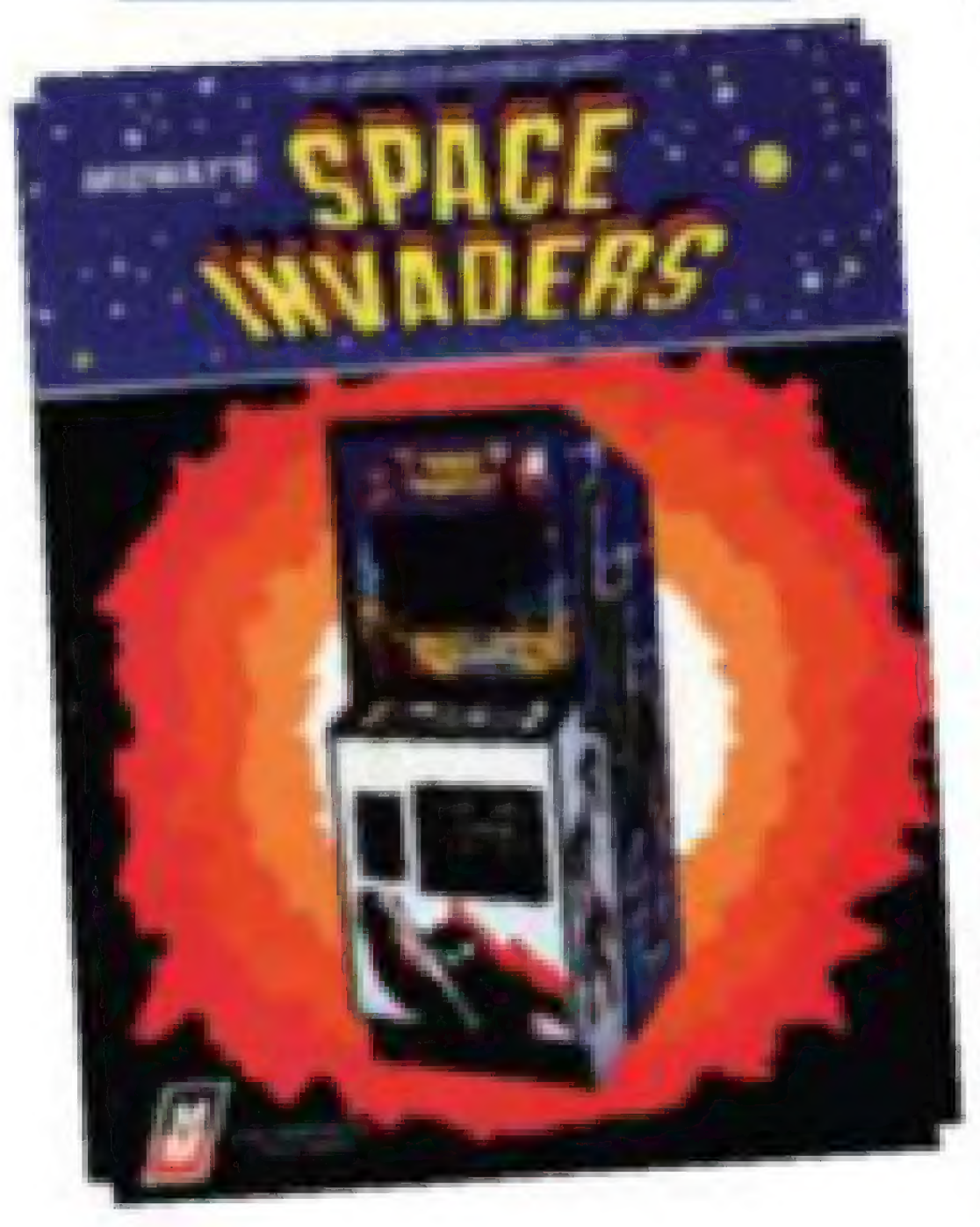
» Tomohiro Nishikado made several games before he created Space Invaders.



» [Arcade] Shooting the UFO will net you bonus points. Careful, it's really quick.

Before *Space Invaders*, videogames weren't viewed as they are today. Taito's seminal shooter is seen as the turning point, the game that convinced the world that these tall bleeping TV cabinets projecting moving interactive shapes were not a passing novelty but a form of entertainment with the potential to be as popular as music and film.

Because of this, *Space Invaders* is and will likely forever be synonymous with the medium of videogames. Its iconic blocky alien enemies have appeared on everything from greetings cards to wall art. And the franchise, in spite of its age and simplistic gameplay, continues to reinvent itself even to this day, as demonstrated by the excellent *Space Invaders Infinity Gene*.



» The original cabinet in all its glory. Don't expect to get one for under £1,000 nowadays.

What impresses as much as the game's generation-stretching impact, though, is the fact that it was created by one man. From the basic concept and hardware, to its graphics, sound and gameplay, Tomohiro Nishikado is responsible for it all.

"After graduating from university I worked at an audio-related company," begins Nishikado when we ask him to tell us how his videogame journey began. "I left after a year and just as I was looking for a new employer, I had a chance meeting with a former colleague from the audio company. He was already working at Taito and recommended it to me as well. I wasn't so much looking to become a game designer as I was hoping to make the most of my electronics skills."

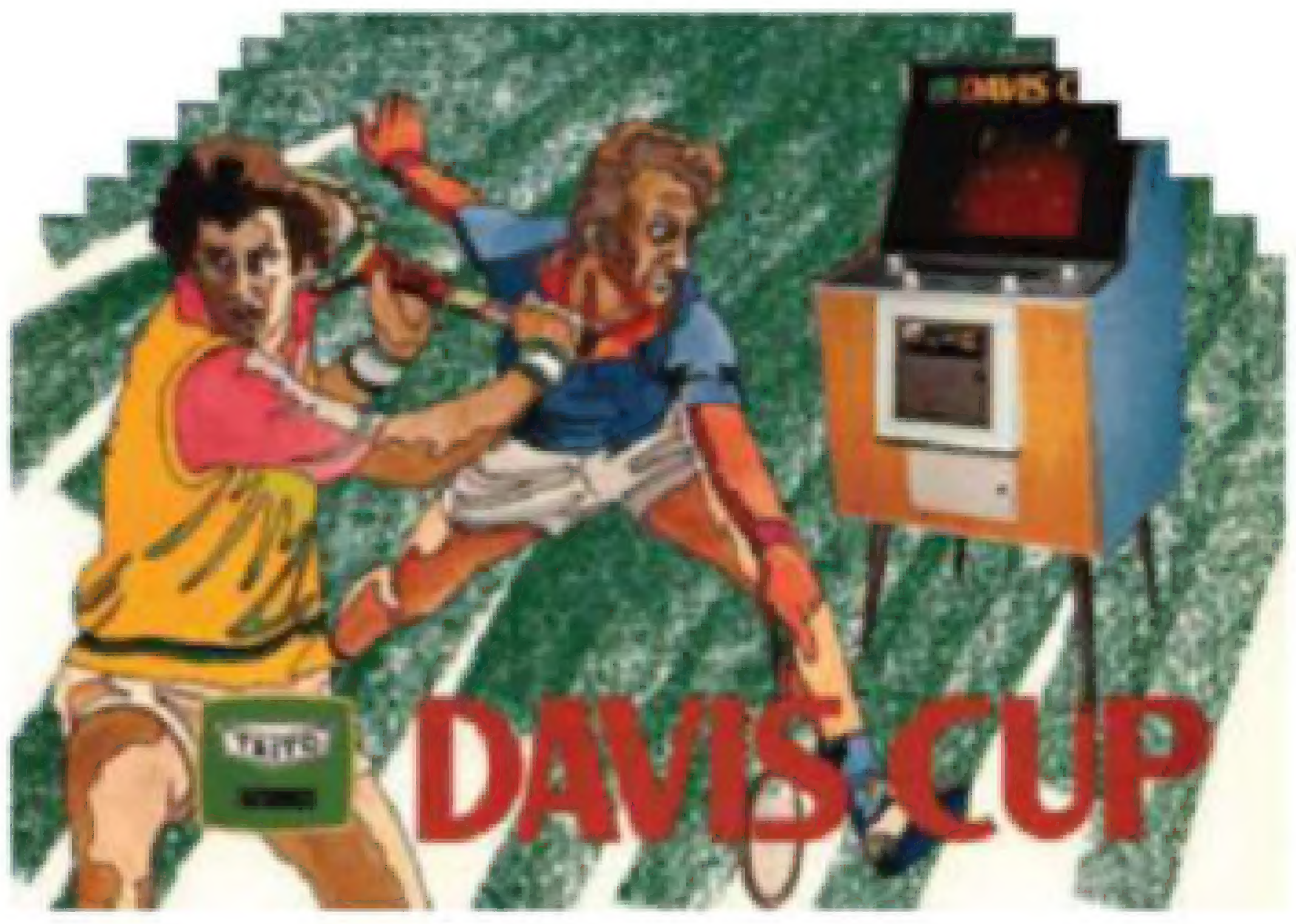
To begin with, Nishikado was involved in developing electromechanical games, but that changed when Atari's *Pong* hit Japan. The popularity of the bat-and-ball game was enough to convince Taito to refocus efforts on creating fully electronic games, and Nishikado was responsible for helping drive this change.

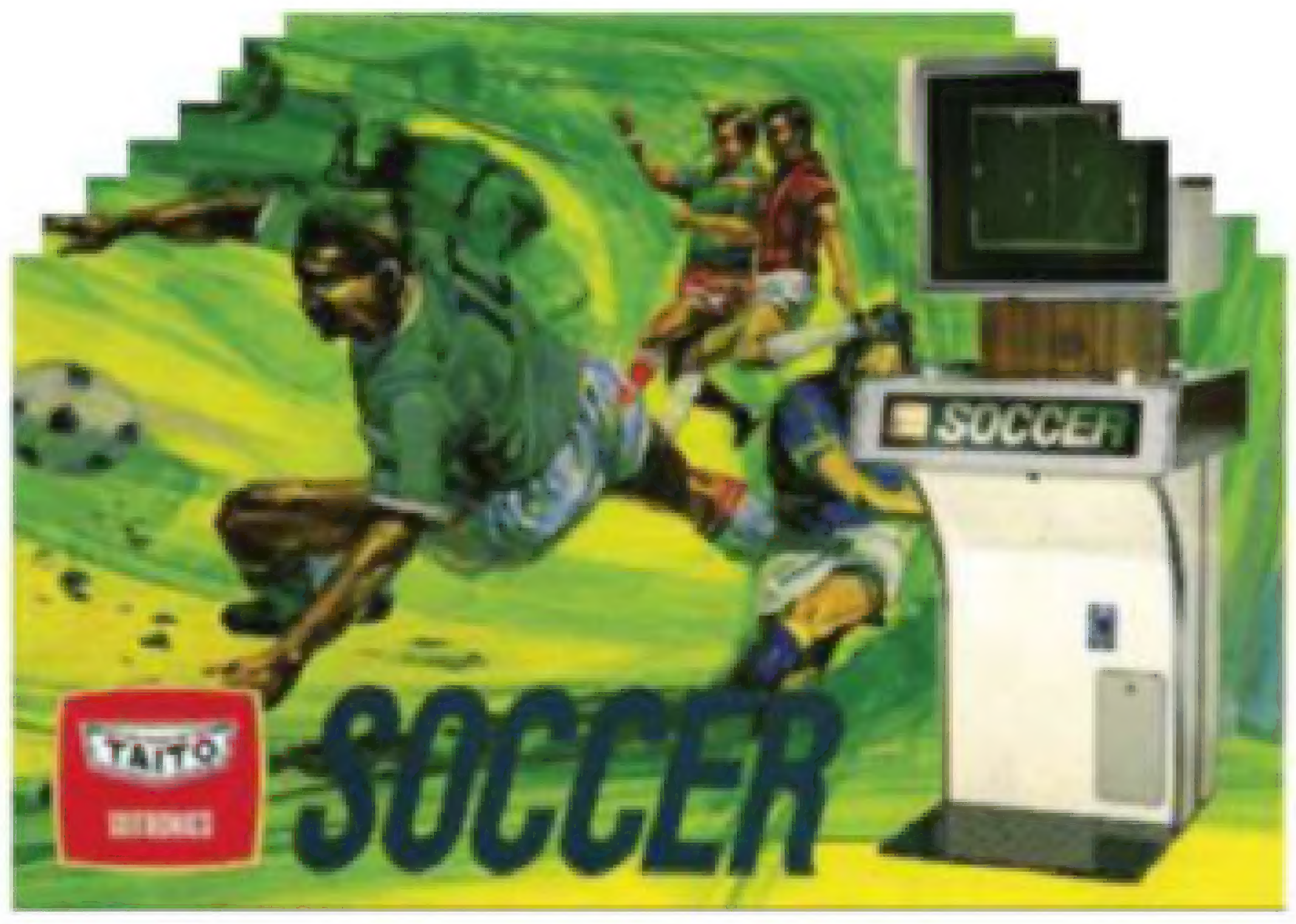
"I analysed *Pong* and set about making new, original videogames (as opposed to mechanical ones). I designed ten of them, including *Speed Race* and *Western Gun*. All of these games were logic IC-based designs, not microcomputer-based. I developed these games almost completely by myself."

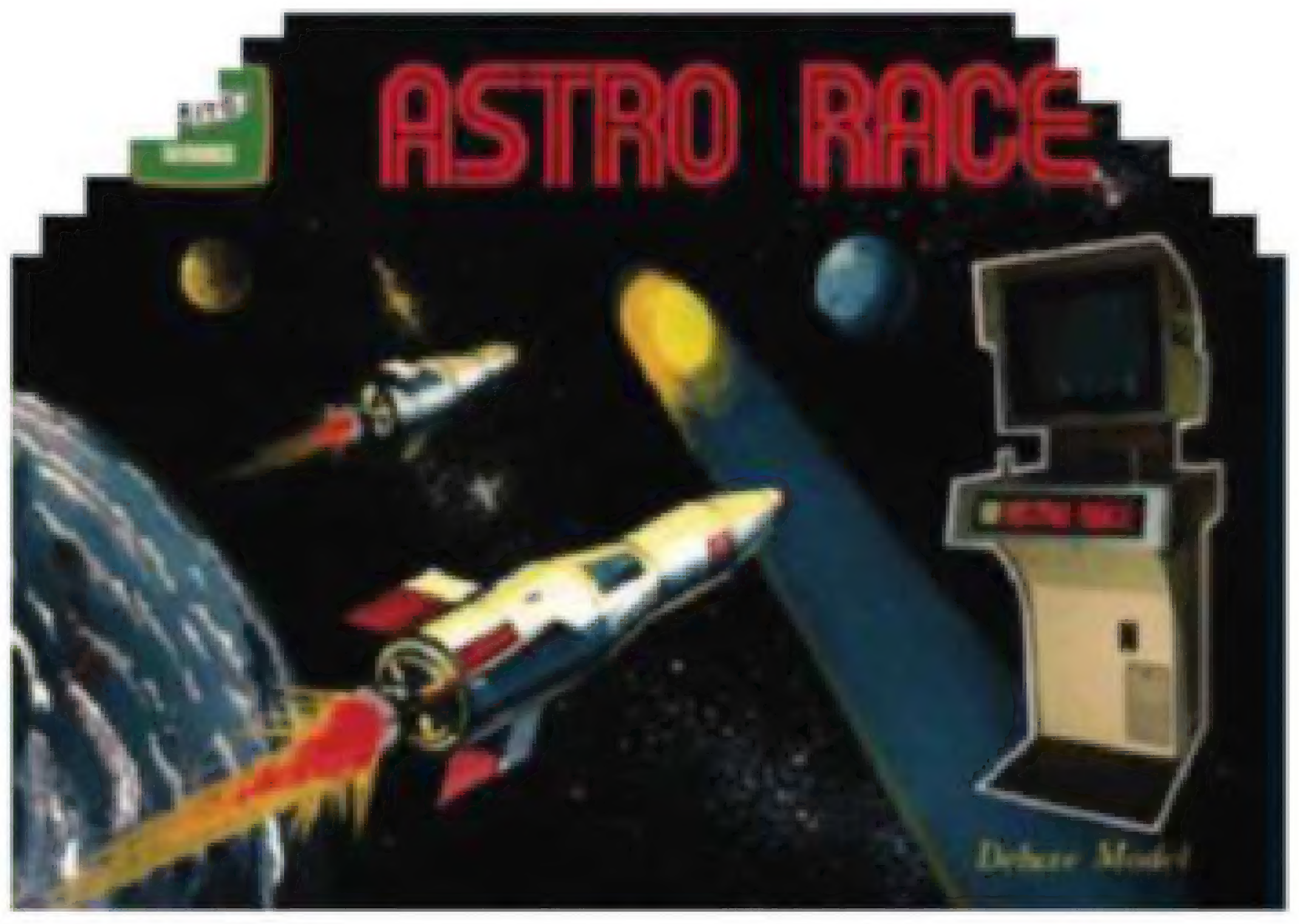
Thanks to his engineering skills, Nishikado soon found himself drawn deeper into game design. His though wasn't an uncommon route into this world. Back then technicians and engineers often *were* game designers. Possessing the knowledge and understanding of what could not be achieved with the limited technology that was available, they were seen as the best people for the job.

BEFORE SPACE INVADERS

WE LOOK BACK AT NISHIKADO'S EARLIER GAMES PRIOR TO HITTING THE BIG TIME WITH SPACE INVADERS







DAVIS CUP

■ As the title implies, *Davis Cup* was a tennis-themed *Pong* variant in which players could control two paddles – to simulate a game of doubles. *Davis Cup* could be played by four players simultaneously and offered both single and doubles play.

SOCCER

■ *Soccer* was another twist on *Pong*'s bat-and-ball formula. In this example players controlled a striker and a goalkeeper joined by other static team-mates, represented by paddles which players could adjust the size of.

ASTRO RACE

■ This competitive space-themed racer, believed to be the first of its kind, saw players racing in a meteoroid field. With something resembling a split-screen mode, players had to get their ship to the top of the screen without a collision (think *Frogger* in space).

In terms of *Space Invaders*' theme and core gameplay design, Nishikado revealed in a previous interview with him that the alien invasion concept originated from two sources: *Star Wars* and the 1953 film adaptation of HG Wells' *The War Of The Worlds* – the movie's manta-ray-shaped Martian war machines inspiring the octopus and crab-like alien designs in the game. Nishikado also revealed that Atari's *Breakout* was the biggest influence on the gameplay of *Space Invaders*; when you put both games side by side, this becomes plain – simply replace its blocks with aliens, the paddle with a laser cannon and you near enough have the same game.

Nishikado expanded *Breakout*'s core formula greatly, though, introducing targets that fired back and menacingly descended on players, as well as deformable defences that could be used for cover. From a gameplay perspective, *Space Invaders* was also simple to grasp. It had a wonderfully straightforward difficulty curve: the more aliens you blasted away, the faster the remainder of the pack moved; and when a wave was successfully defeated, the game served up a more challenging one. Of course, the other thing that contributed to *Space Invaders*' success was the iconic alien enemies. The stars of the show, they were some of first videogame characters to exude a sense of menace and personality, and this is something that struck a big chord with many people.

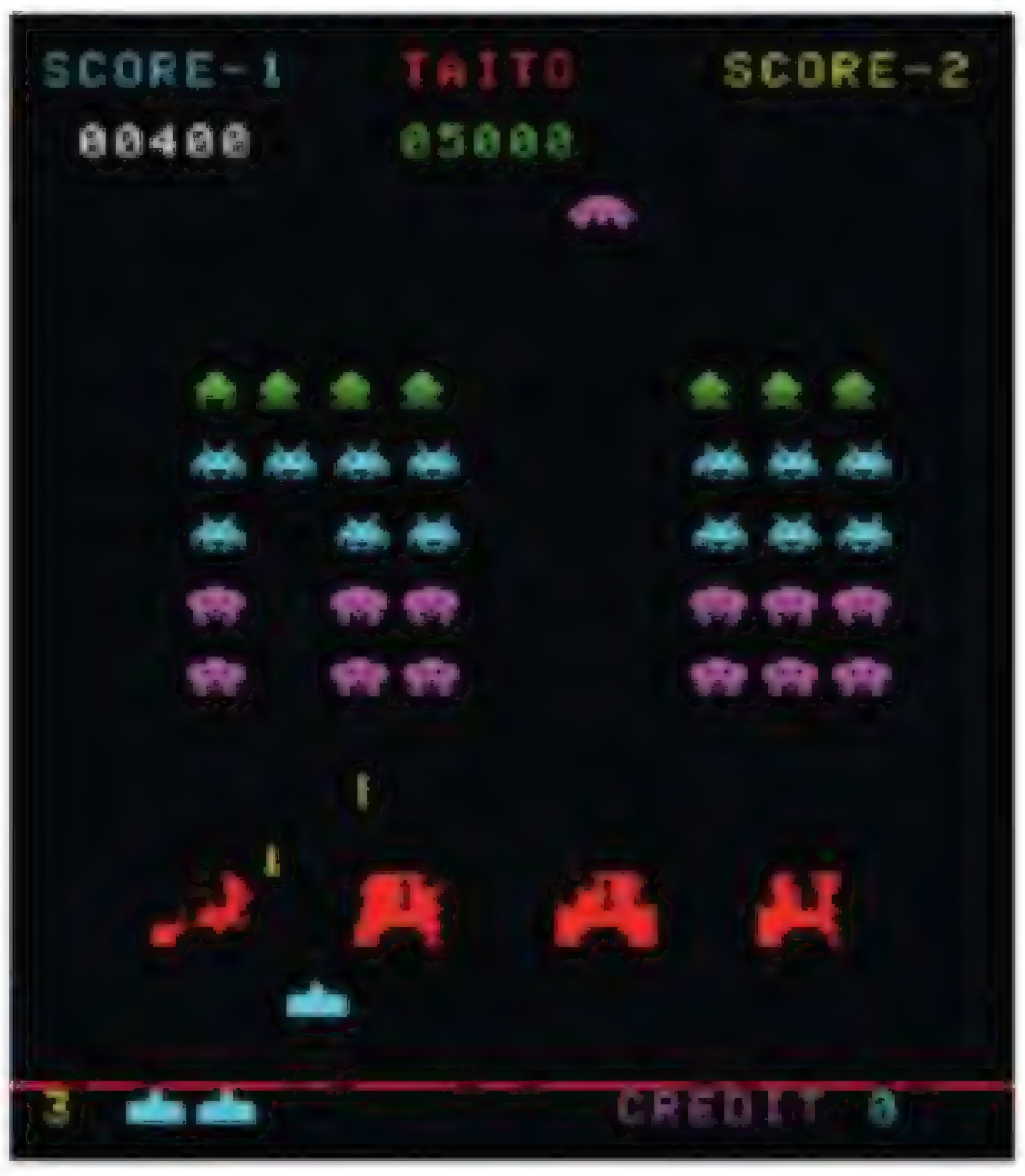
"I came across the magic, mirrored masterpiece at either South Cliff Amusements or the chip shop on West Street (can't remember)," recalls Andy Walker, founder of C64 software house Taskset. "It was learnable, fast, it had an automatic crescendo as they marched down the screen, and with wry humour – that great touch of the 'Y' in play being upside down and corrected by one of the invaders, it was the first 'attitude' and 'soul' expressed by a videogame character that I can remember."

When *Space Invaders* neared completion, Nishikado showed it to his colleagues within Taito's development department. Their reactions were encouraging enough to convince him that it held appeal. However, there were some higher-ups at Taito who were still unconvinced: "Unlike the development department, the upper echelons of the sales department were very sceptical. They told me that the game needed a lot of work to be a hit. Later on we held private shows for members of the arcade industry, and their reaction wasn't very favourable either."

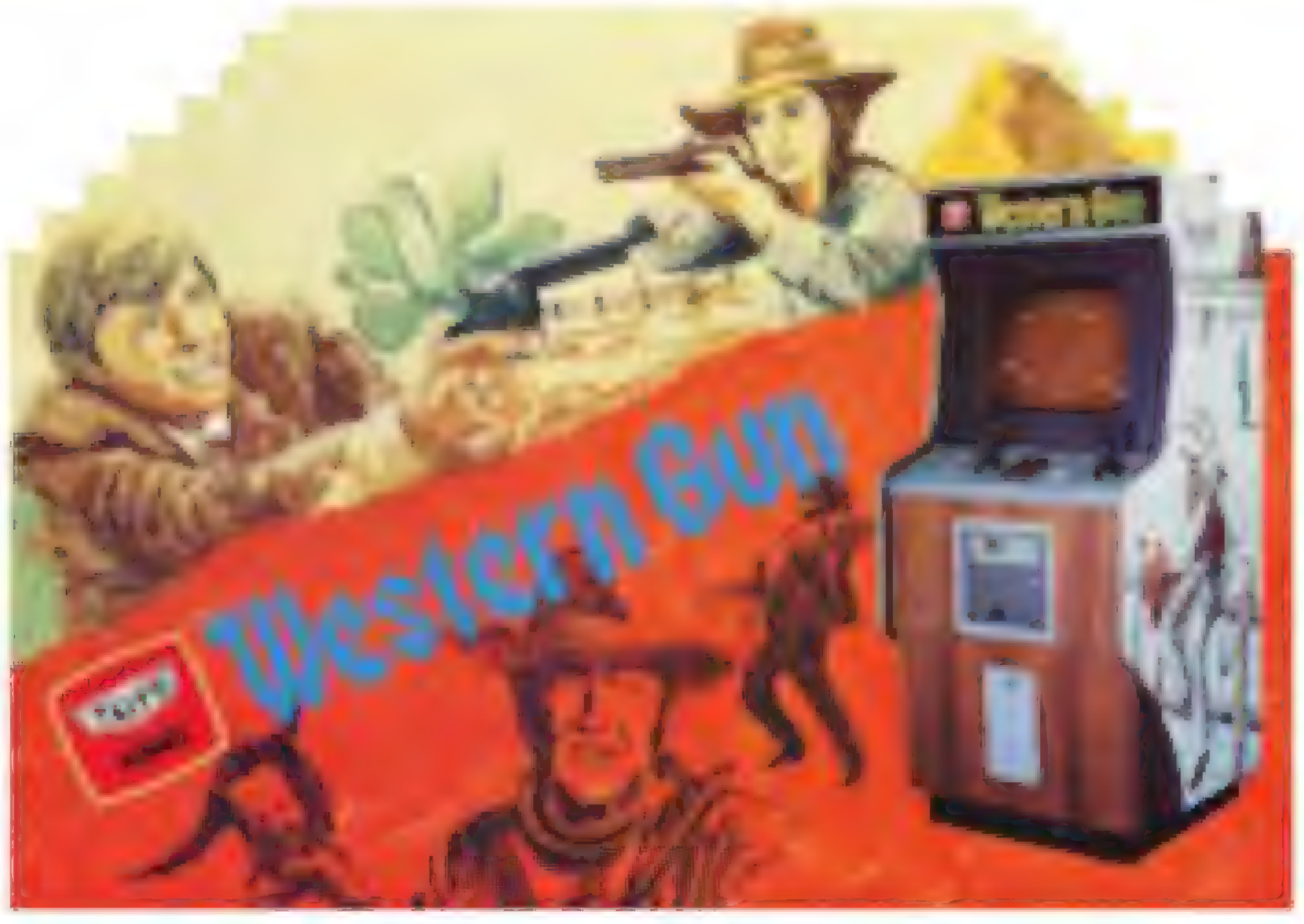
> **"THEY TOLD ME THE GAME NEEDED A LOT OF WORK TO BE A HIT"**
> TOMOHIRO NISHIKADO

Nishikado wasn't worried, though, as the game wasn't aimed at them. "While *Space Invaders* wasn't the first shooting game, most to that point had the player shooting down passive targets to rack up points. *Space Invaders* had the enemies shoot back; I think that was especially exciting to the youthful arcade audience. The upper level sales staff and arcade operators felt the Invaders' attacks made the game too difficult, but they were also a lot older than the game's players. I also think that the feeling of exhilaration that comes with systematically wiping out a screen full of targets was important to the game's success."

Taking 12 months to create, *Space Invaders* was released in Japan in July 1978. It quickly became a cultural phenomenon that elevated videogames from electronic curios into the major entertainment industry that they today. There are various urban myths connected to the cultural and even economic impact its release had – from causing a temporary 100-yen coin shortage as people flocked to surrender money to machines, to inciting juvenile crime as kids turned to stealing money to feed their obsessions with the game.

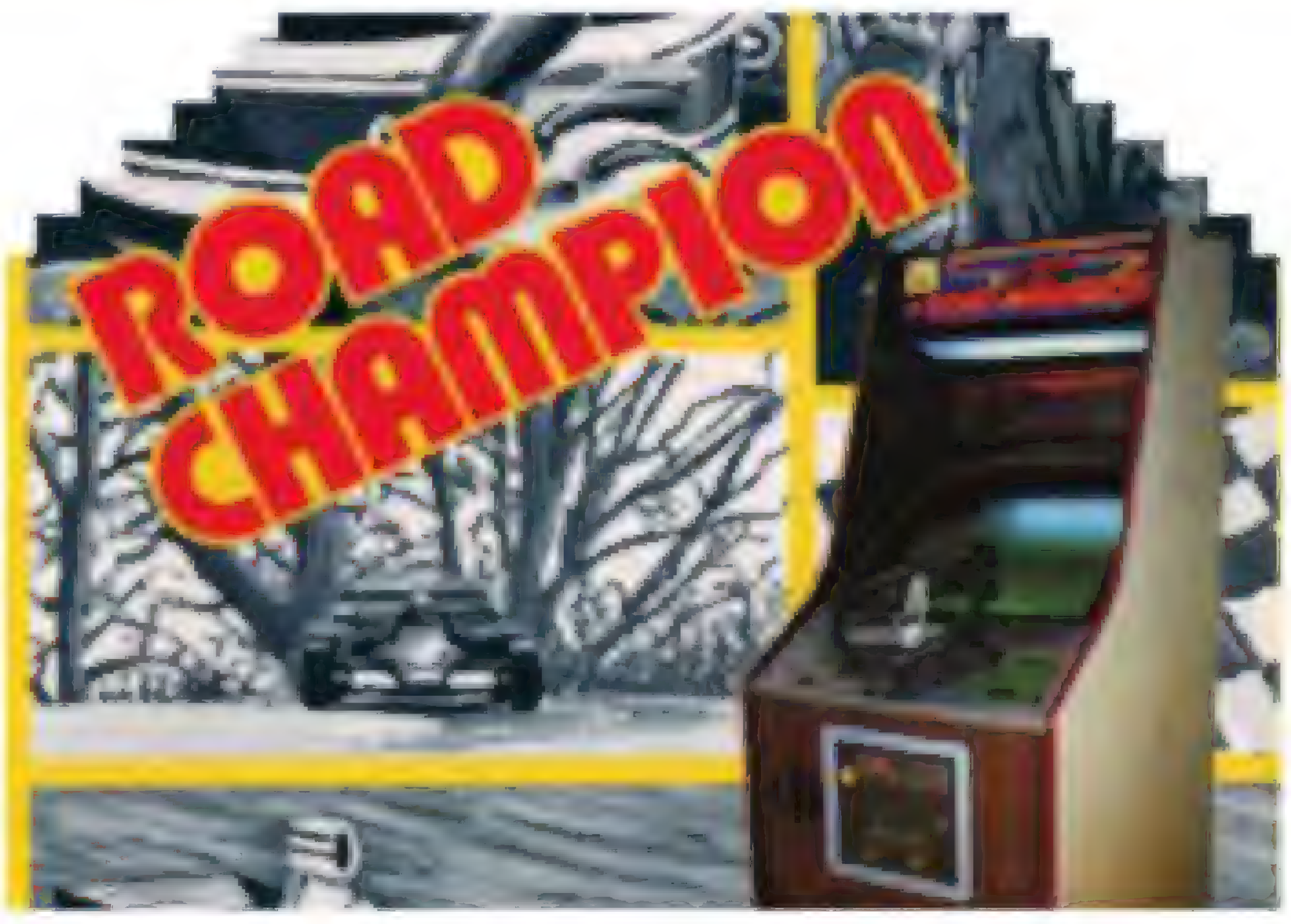


» [Arcade] Taito's second *Space Invaders* game featured proper colour visuals.



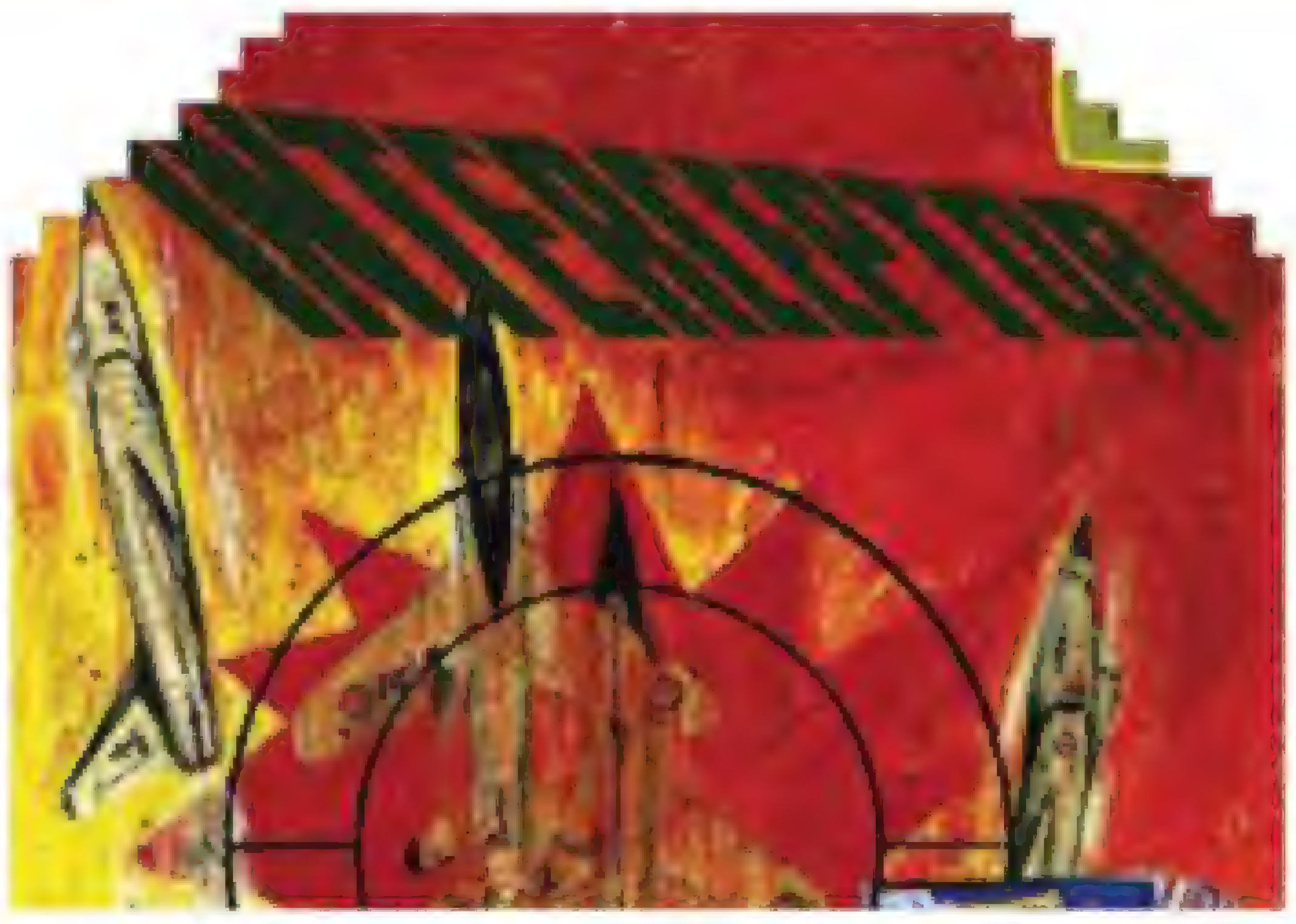
WESTERN GUN

■ Another *Pong* variant, this one saw the paddles become duelling cowboys shooting at one another from opposite sides of the screen. Said to be the first videogame to show two human sprites attacking one another, it's often seen as the granddaddy of the fighting game.



ROAD CHAMPION

■ Taking the *Astro Race* concept and applying it to a proper car racing scenario, many writers cite *Road Champion* as the first true racing videogame. It had a scrolling track, rival racers and controls made up of a gas pedal, steering wheel and gearstick.

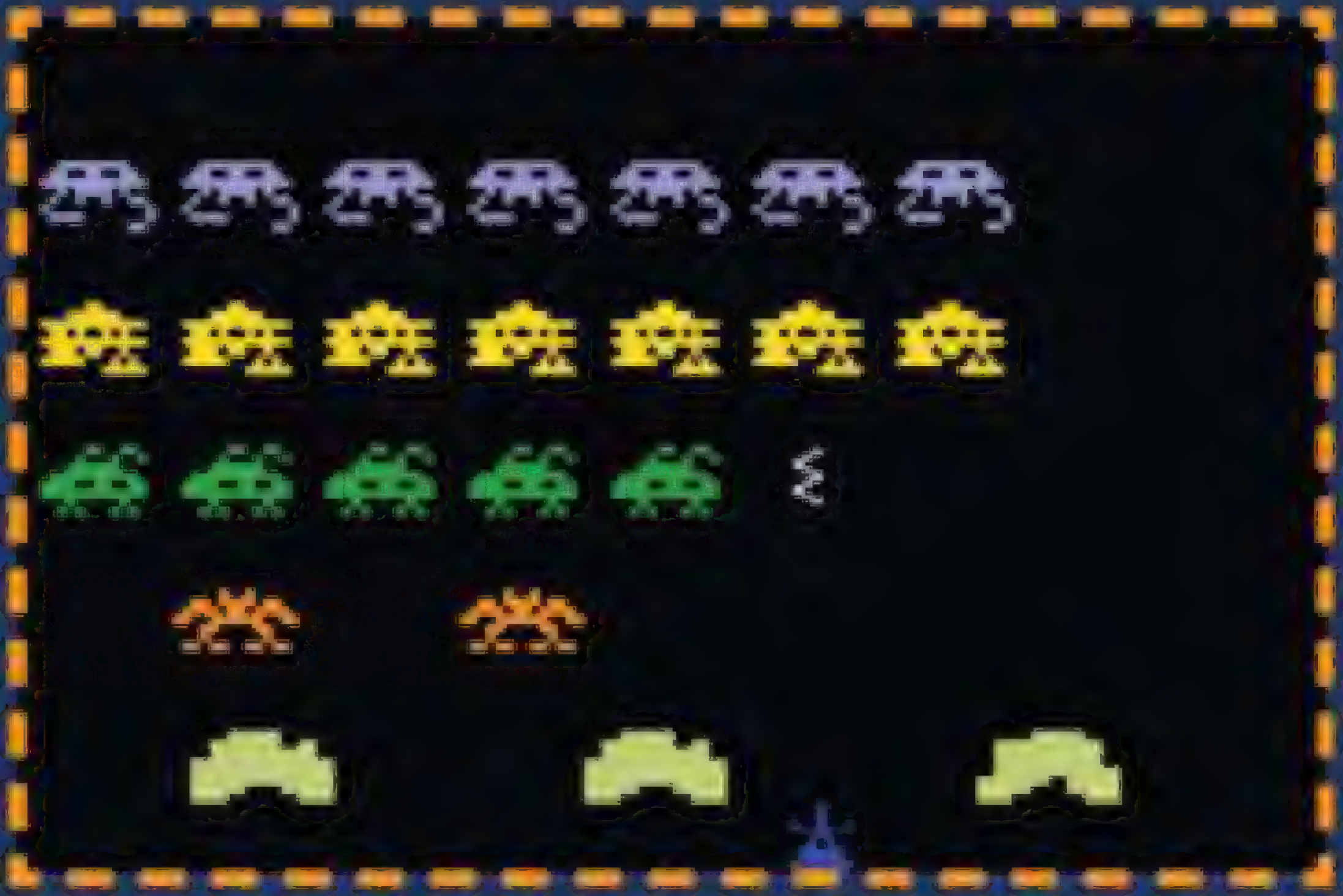


INTERCEPTOR

■ In this early and impressive first-person shooter, players piloted a jet fighter from inside its cockpit and used a targeting crosshair to shoot down enemy planes that travelled in formations and scaled in size.

THE INVADERS ARE COMING

AS SPACE INVADERS HAS SPAWNED MORE CLONES THAN JANGO FETT, WE THOUGHT WE'D TAKE A LOOK AT SOME OF THE BETTER SPACE INVADERS IMITATORS

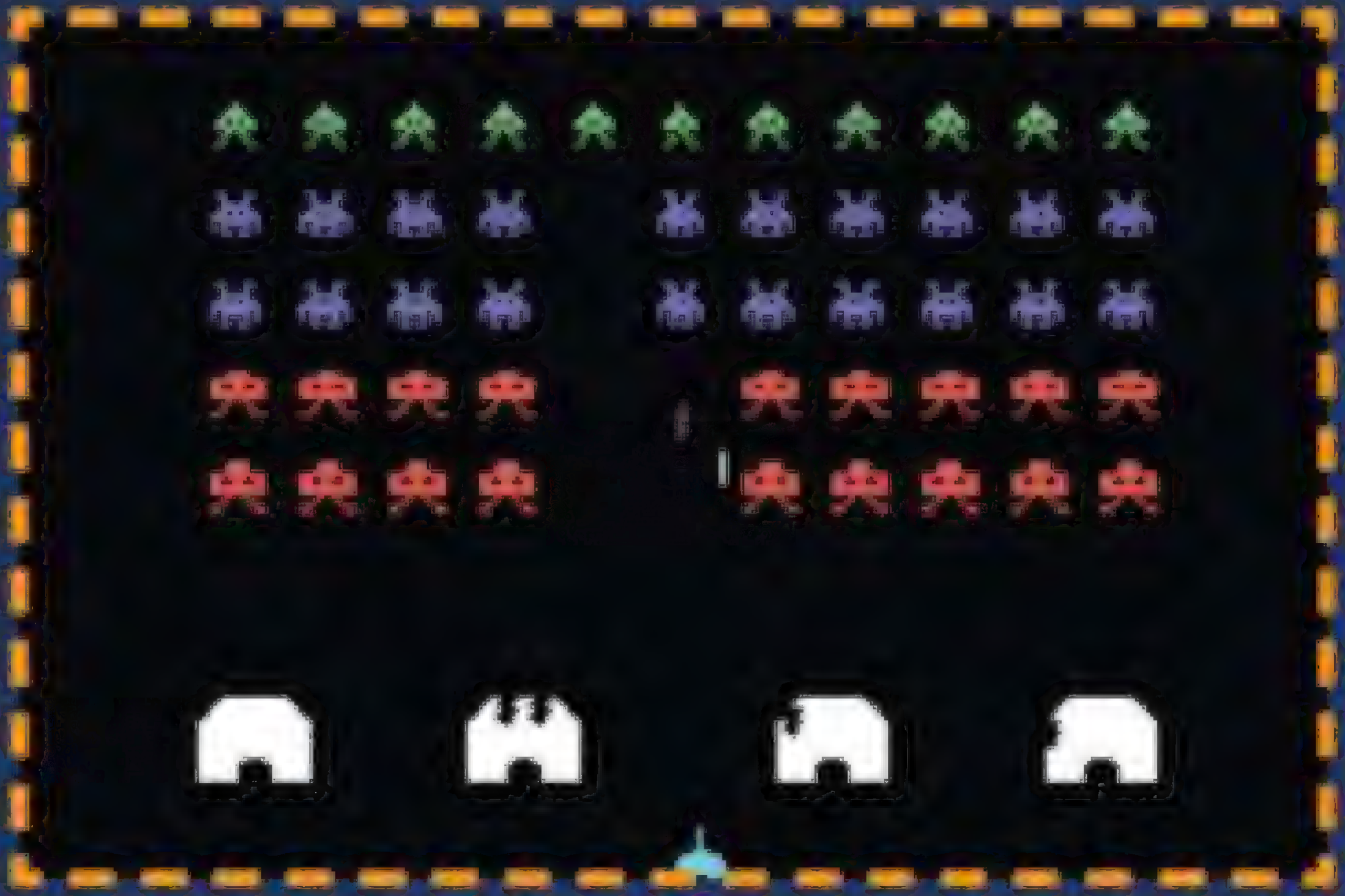


SPACE ARMADA

DEVELOPER: MATTEL

YEAR: 1981 SYSTEM: INTELLIVISION

■ With chunky graphics and sound, *Space Armada* feels like chubby *Space Invaders*. As such, the playing field feels claustrophobic, though the gameplay is fairly on the money. This version has deformable defences and a mystery mothership target that awards bonus points. Having different alien bullet types is also a nice touch.

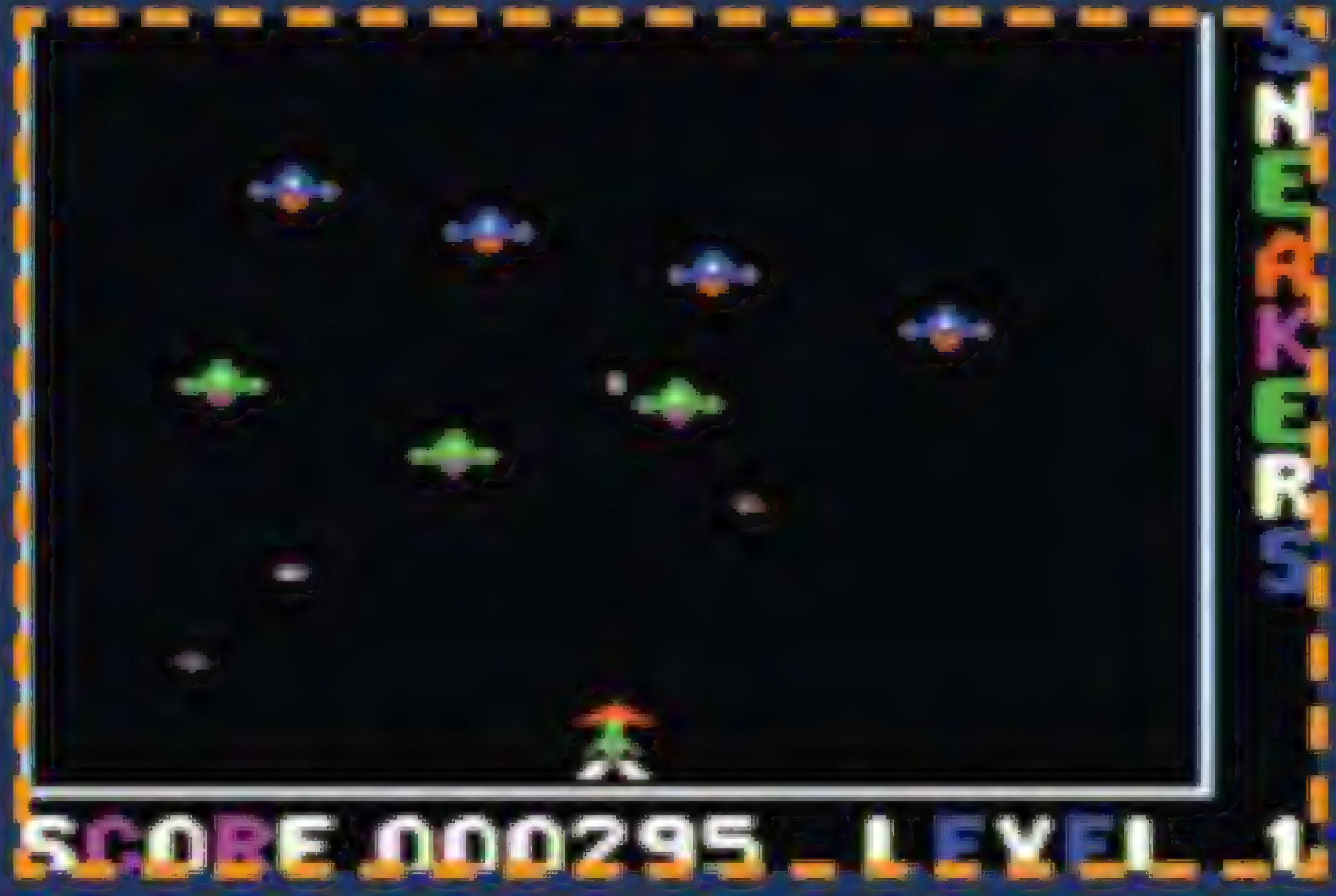


TI INVADERS

DEVELOPER: TEXAS INSTRUMENTS

YEAR: 1981 SYSTEM: TI-99/4A

■ In this popular TI version you have two levels of difficulty to choose from and a neat bonus round where you can rack up extra points by changing the direction of a mothership by repeatedly hitting it. The graphics are nice and crisp, the controls responsive and overall it's a decent little *Space Invaders* clone.

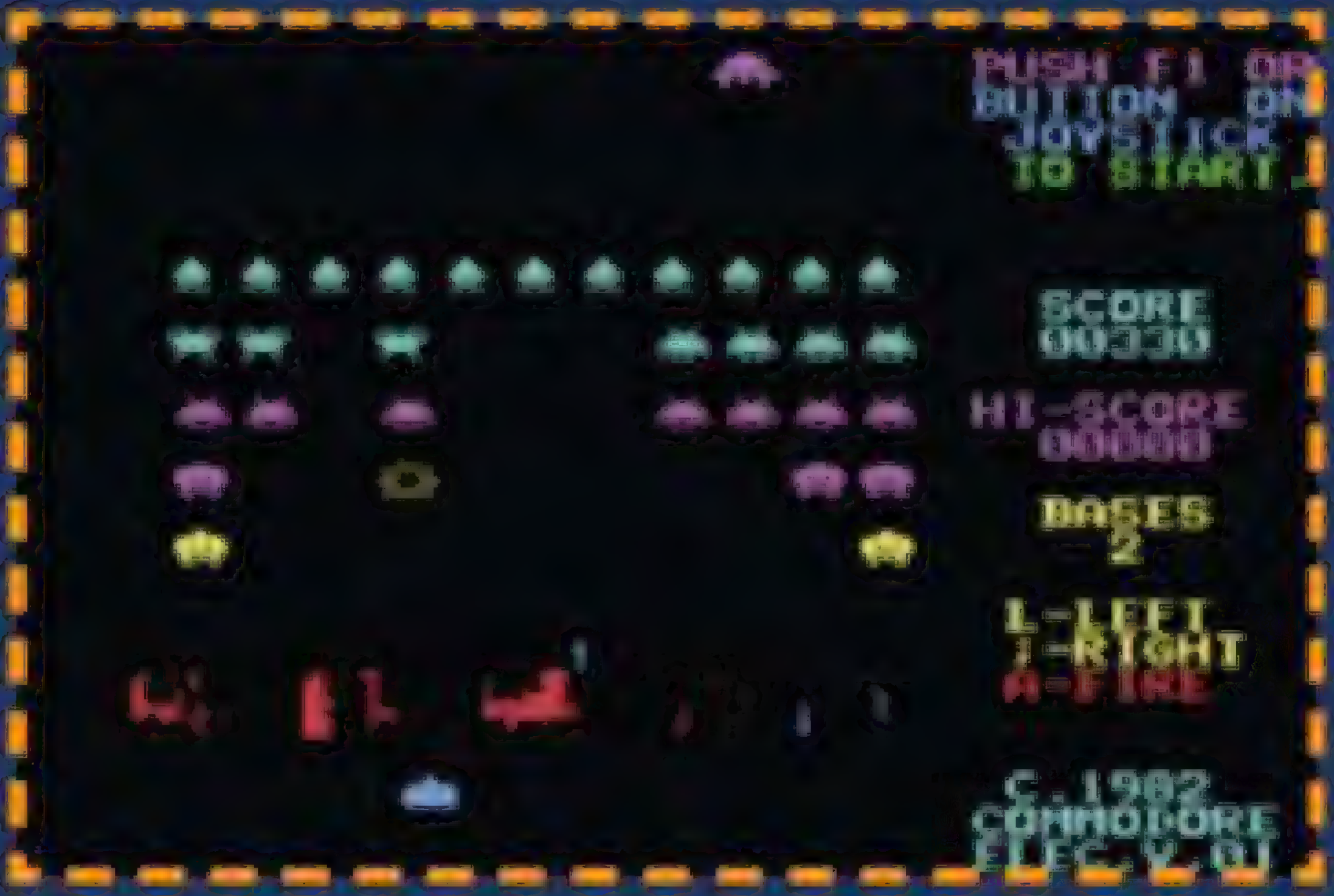


SNEAKERS

DEVELOPER: SIRIUS SOFTWARE

YEAR: 1981 SYSTEM: APPLE II

■ Written by Mark Turmell (*NBA Jam*, *Smash TV*) for the Apple II, *Sneakers* has more variety than other 'invader' games. It features eight different waves, each with its own enemy that requires a different strategy to defeat, with the exception of one stage whereby you must safely navigate a meteoroid and asteroid field.

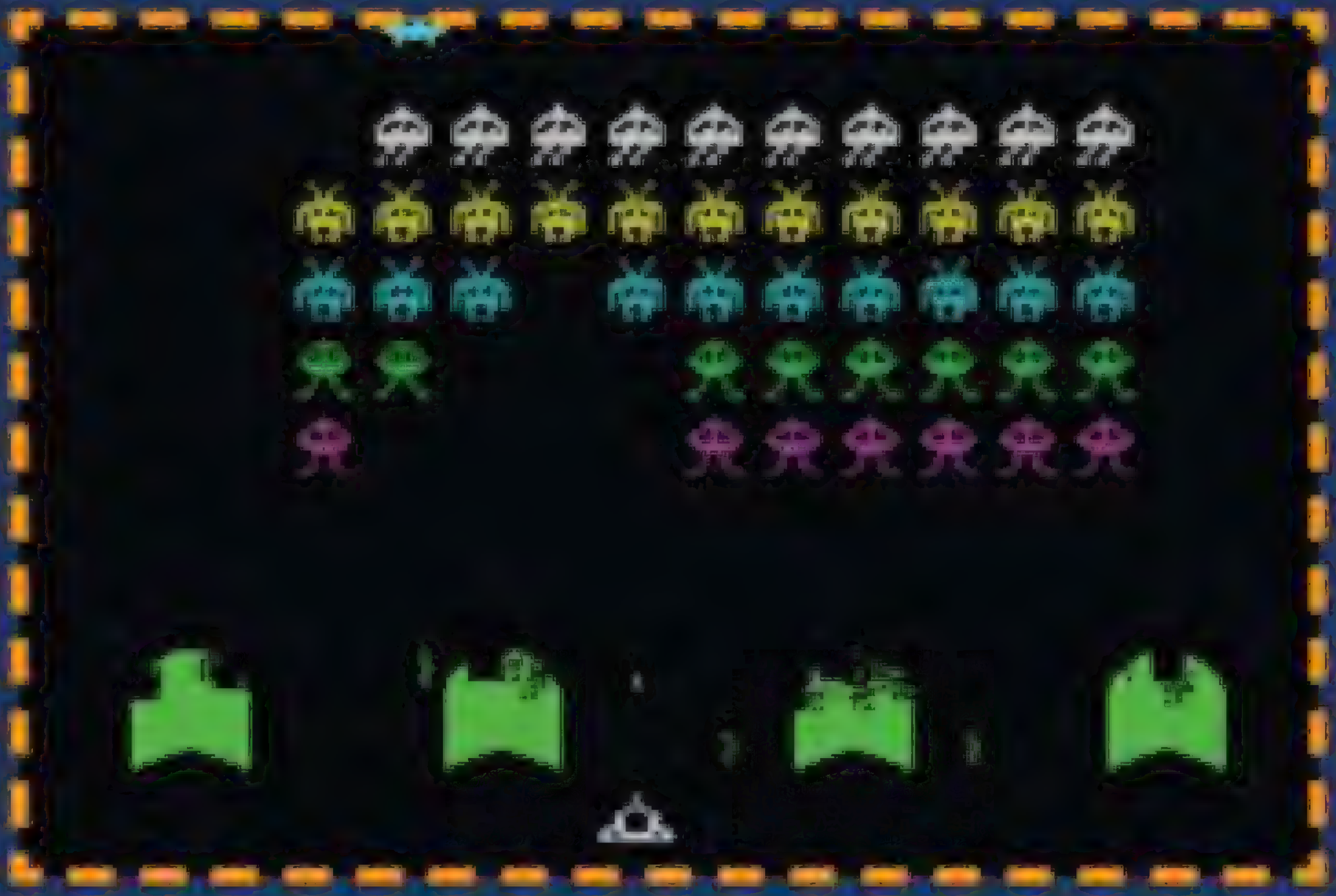

PUSH F1 OR BUTTON ON JOYSTICK TO START
SCORE 00330
HI-SCORE 00000
BASES 2
L-LEFT
;-RIGHT
A-FIRE
C 1982 COMMODORE ELEC V 01

AVENGER

DEVELOPER: ATARI YEAR: 1981

SYSTEM: COMMODORE 64, VIC-20, COMMODORE MAX

■ This splendid little clone for Commodore computers looks like an official conversion. All the sprites, from the bunkers to the aliens, look accurate and the game plays well thanks to responsive controls and smooth animation – save for the aliens who retain that lovely shuffle movement.

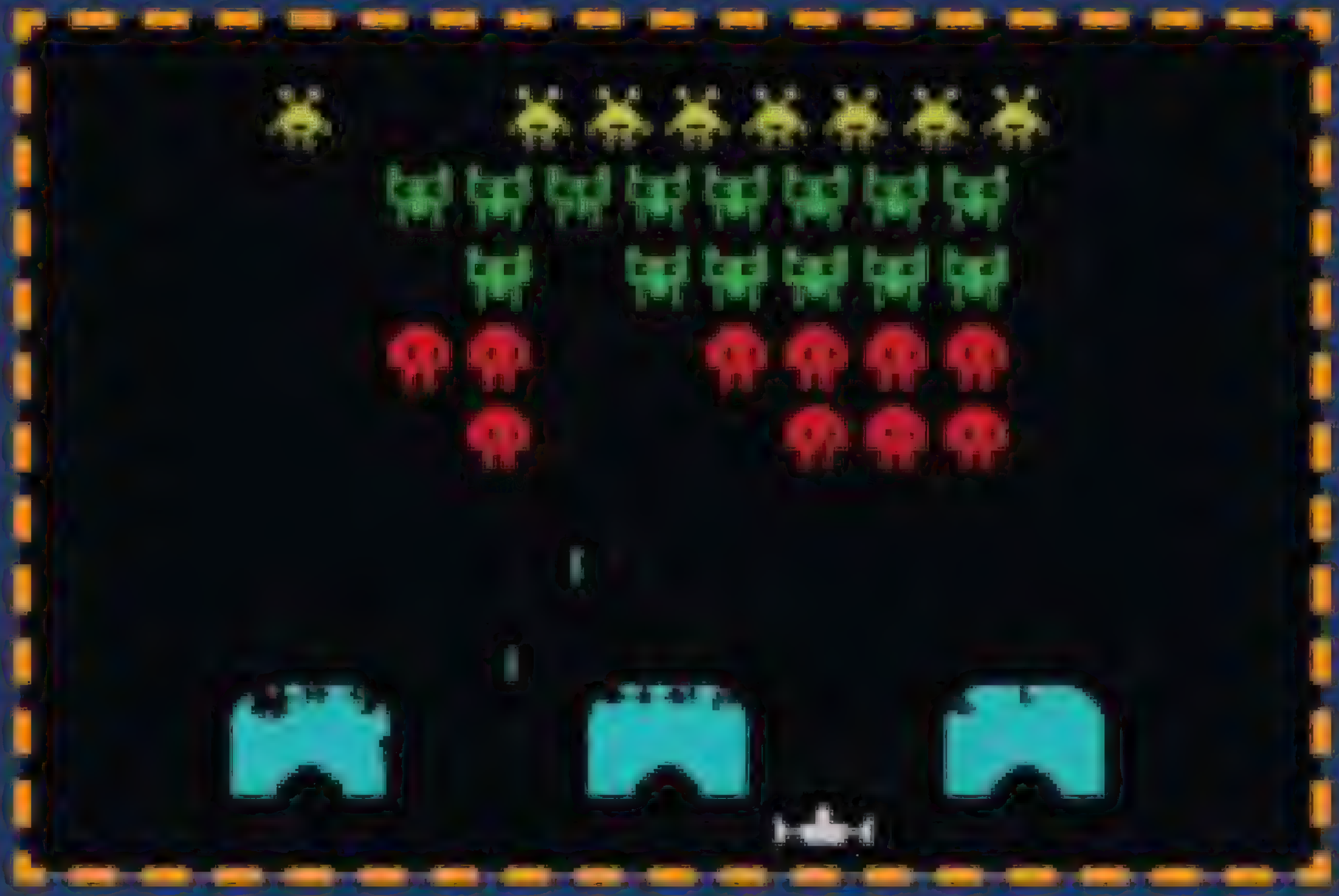


SPECTRAL INVADERS

DEVELOPER: DAVID H LAWSON

YEAR: 1981 SYSTEM: ZX SPECTRUM

■ If issue 13 of *Computer & Videogames* is to be believed then *Spectral Invaders* was the first 'invaders' game for the ZX Spectrum, though it isn't a great *Space Invaders* clone to be honest. The player-cannon moves too slow and the kill animations are delayed, meaning you're frequently questioning whether your shots are on target.

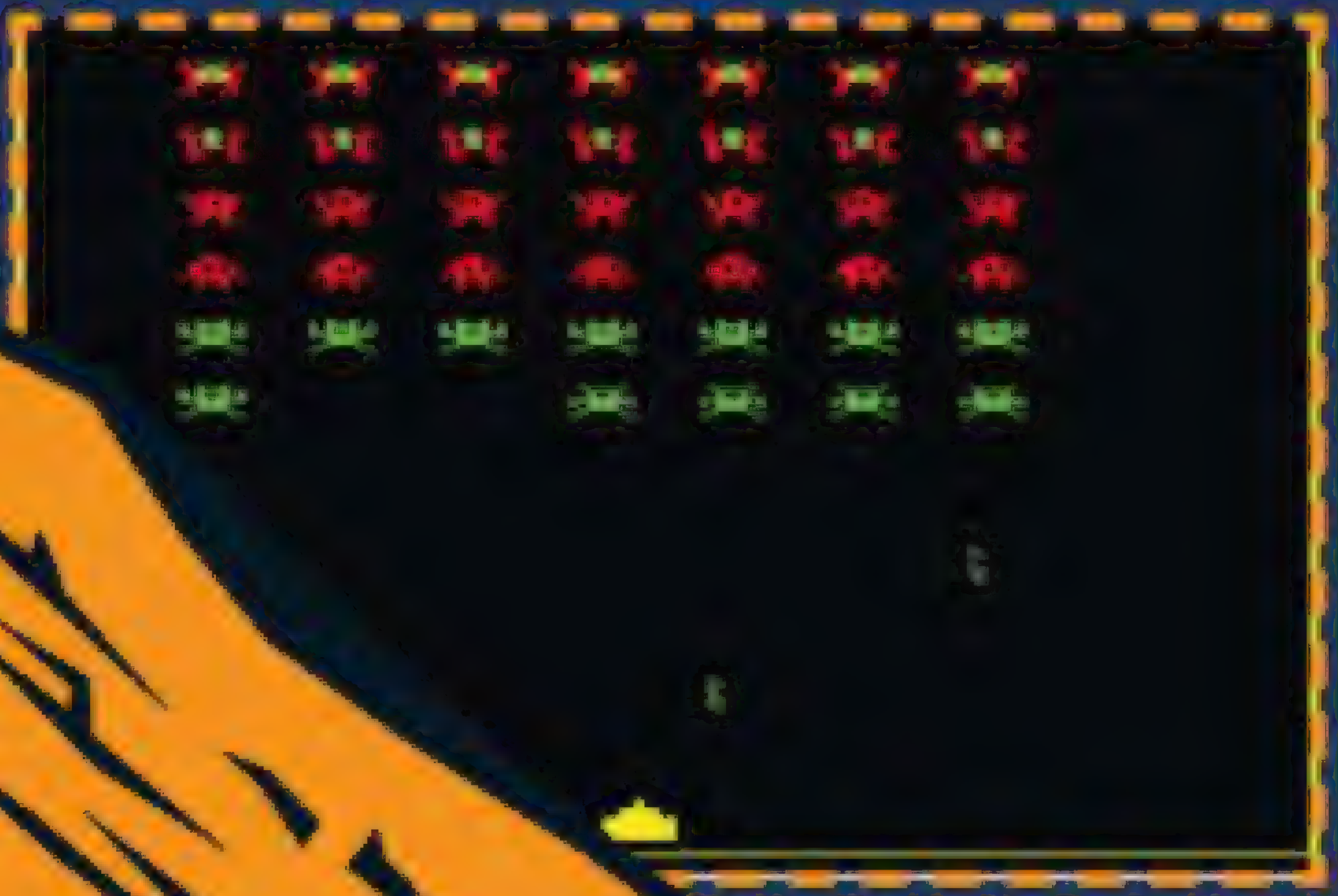


SPACE RAIDERS

DEVELOPER: PSION

YEAR: 1982 SYSTEM: ZX SPECTRUM

■ This ZX Spectrum game is one of the best *Space Invaders* clones you could play. It nails the look of the game, the enemy-to-screen ratio is great, waves feature 55 aliens and the animation is also spot-on with the aliens shuffling left to right in lines rather than in unison as in many other clones.

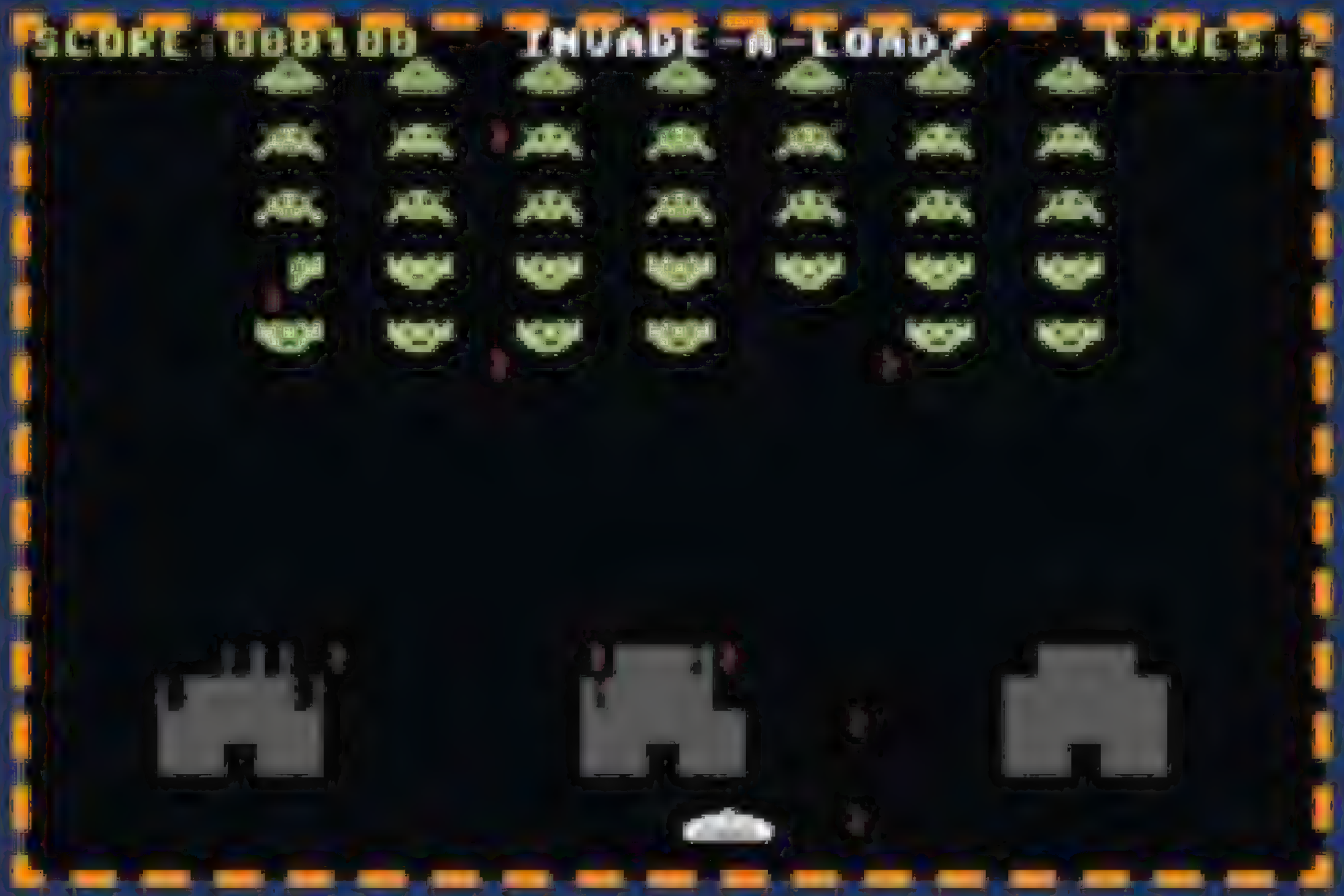


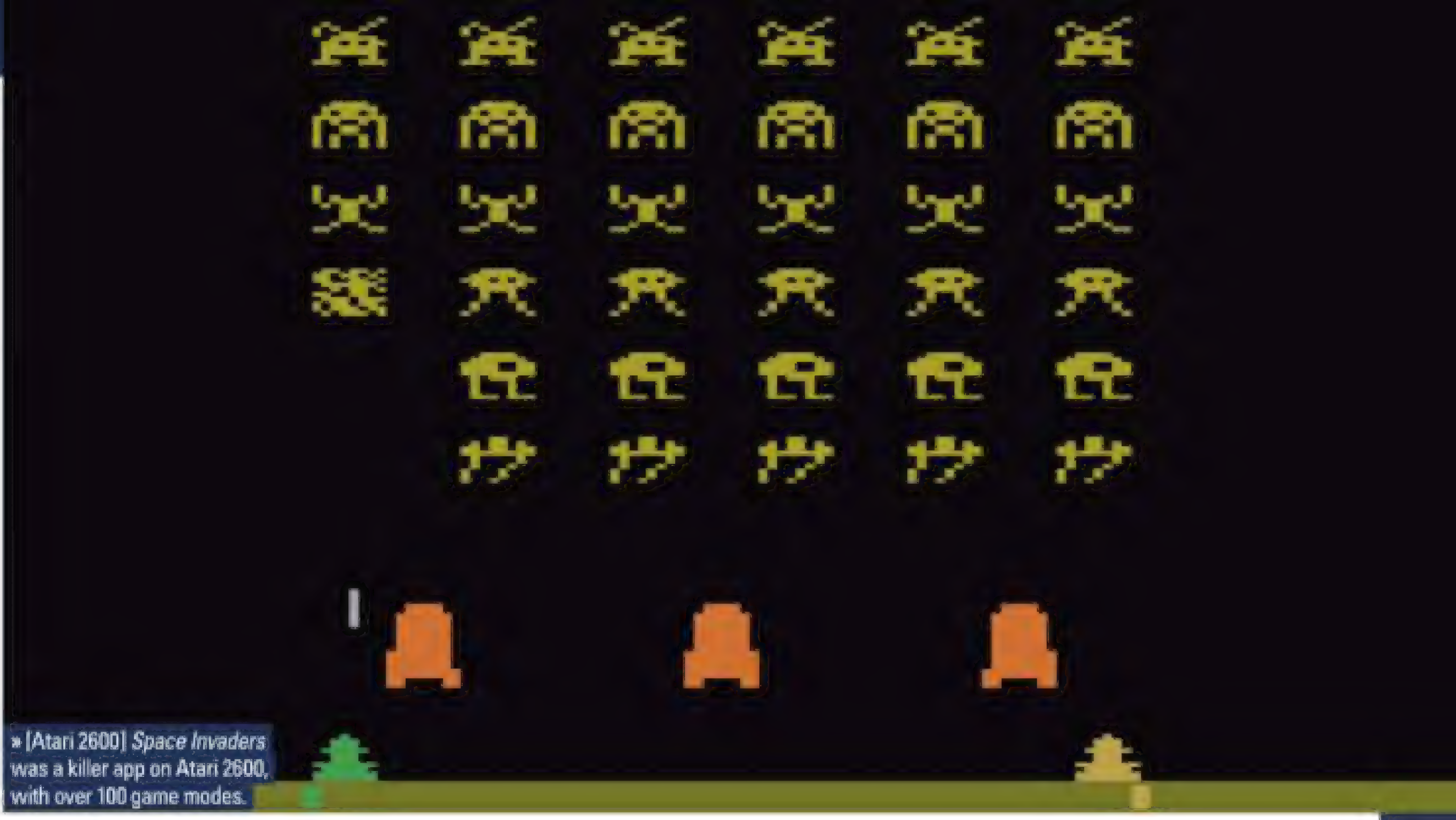
INVADERS

DEVELOPER: TEXAS IJK

YEAR: 1982 SYSTEM: BBC, ACORN ELECTRON

■ There are also two versions of IJK's *Invaders* (Model A and B versions). The B version features better graphics and a plethora of options, from adjusting the speed of aliens and their bullets to turning the aliens invisible. The Model A version is the most an abstract-looking clone out there, with alien sprites represented by blocky shapes.





» [Atari 2600] *Space Invaders* was a killer app on Atari 2600, with over 100 game modes.

▶ "I didn't get to experience the original boom, but even as a kid in a rural town I was well aware of the game, so it's clear that it had a huge impact on Japanese popular culture," remembers Reisuke Ishida, director of *Space Invaders Infinity Gene* and self-confessed *Space Invaders* super-fan. "Even in my arcade-deprived town, I could go to a friend's house and see *Space Invaders* merchandise, or turn on the TV and see *Space Invaders*-themed anime. It became very familiar during my childhood."

S*pace Invaders* mania spread to the US the following year when it was picked up and distributed by Midway Manufacturing. The latter started development of its own arcade version in August 1978. The graphics in its US version had a neat semi-translucent quality, created by having the visuals reflected through a mirror and projected on a painted background of a lunar surface. Colour was also cleverly added through coloured cellophane overlays, a technique Atari also utilised in many of its early 'colour' games (*Breakout* being a good example). These tricks greatly enhanced the black and white visuals of the standard and 'TT Space Invaders' cocktail versions that were released in Japan, although some standard Taito models also used the cellophane strip trick.

"IT'S CLEAR IT HAD A HUGE IMPACT ON JAPANESE POPULAR CULTURE"

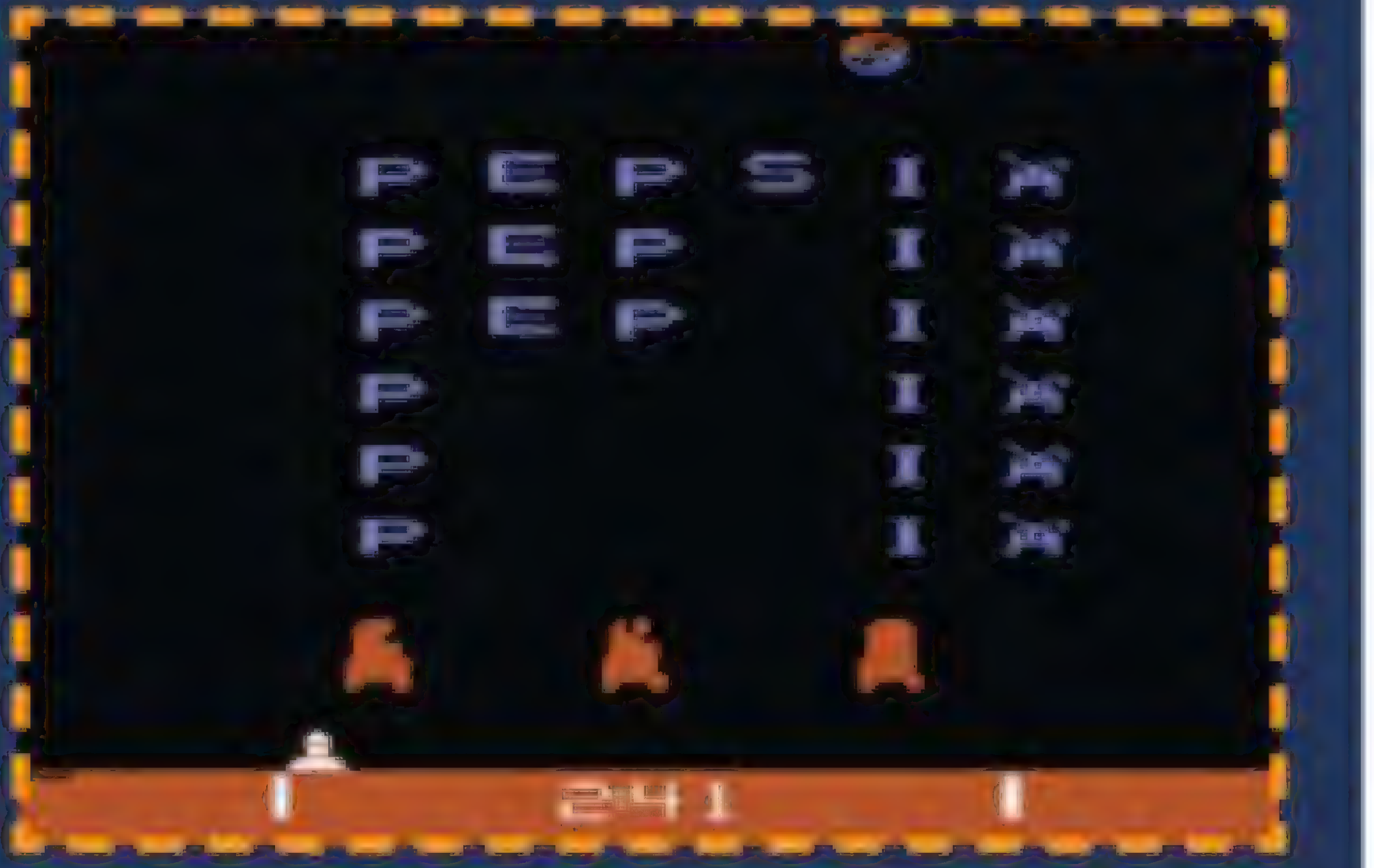
REISUKE ISHIDA

In the US the effects of *Space Invaders*' popularity was felt both in the coin-op and domestic videogame market. The home market had taken a bit of battering due to the 1978 videogame crash which was caused by *Pong* clones saturating the marketplace, and so, fortunately for Atari – whose bosses were left scratching their heads trying to work out what to do with the some 250,000 VCS consoles in a beleaguered market – *Space Invaders* arrived at a crucial time.

After Atari's then president Ray Kassar successfully secured the home videogame rights, Atari quickly put its own VCS conversion into production. It was a canny manoeuvre that quadrupled the sales of the VCS home console and gave it the critical boost it needed to start ruling domestic gaming in North America. Such was the demand for the game that *Space Invaders* became the first killer app for the VCS, with many purchasing Atari's console just to be able to play a version in their living rooms. It was an excellent conversion too. Though not an identical replica – it featured fewer bunkers and alien targets – the VCS port offered new alien types, over a hundred game variations, and even a simultaneous co-op mode.

Weirdly – although perhaps shrewdly in hindsight – Atari chose not sublicense the *Space Invaders* IP and allow versions of the game to appear on competitors' machines and computers, and this resulted in very few official conversions seeing release until the early Eighties. There was, however, one early port that slipped through the net.

During the early days of coin-op licensing, companies were still figuring out the system. These were relatively uncharted waters and, as such, many companies assumed that by having the licence of an arcade game, that gave them the freedom to release it on whatever format ▶

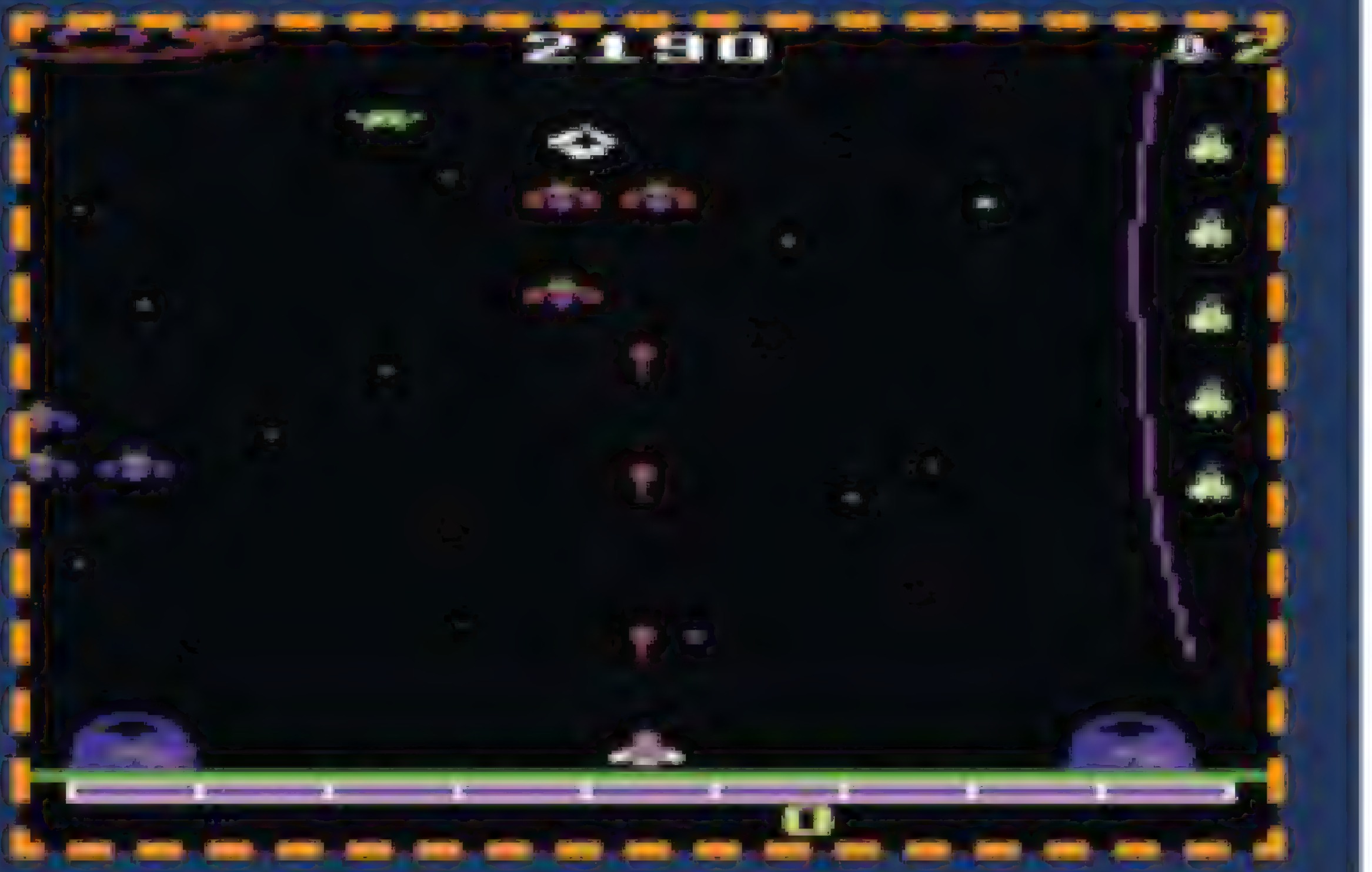


PEPSI INVADERS

DEVELOPER: ATARI

YEAR: 1983 SYSTEM: ATARI 2600

■ *Pepsi Invaders* was an in-house business gift that Coca-Cola commissioned from Atari. Taking a swipe at its biggest rival, the enemy targets spelled out the word Pepsi and the mothership was the Pepsi logo. Never released at retail, and with only a hundred or so copies made, it's the rarest *Space Invaders* clone out there.



BANDITS

DEVELOPER: SIRIUS SOFTWARE

YEAR: 1983 SYSTEM: VARIOUS

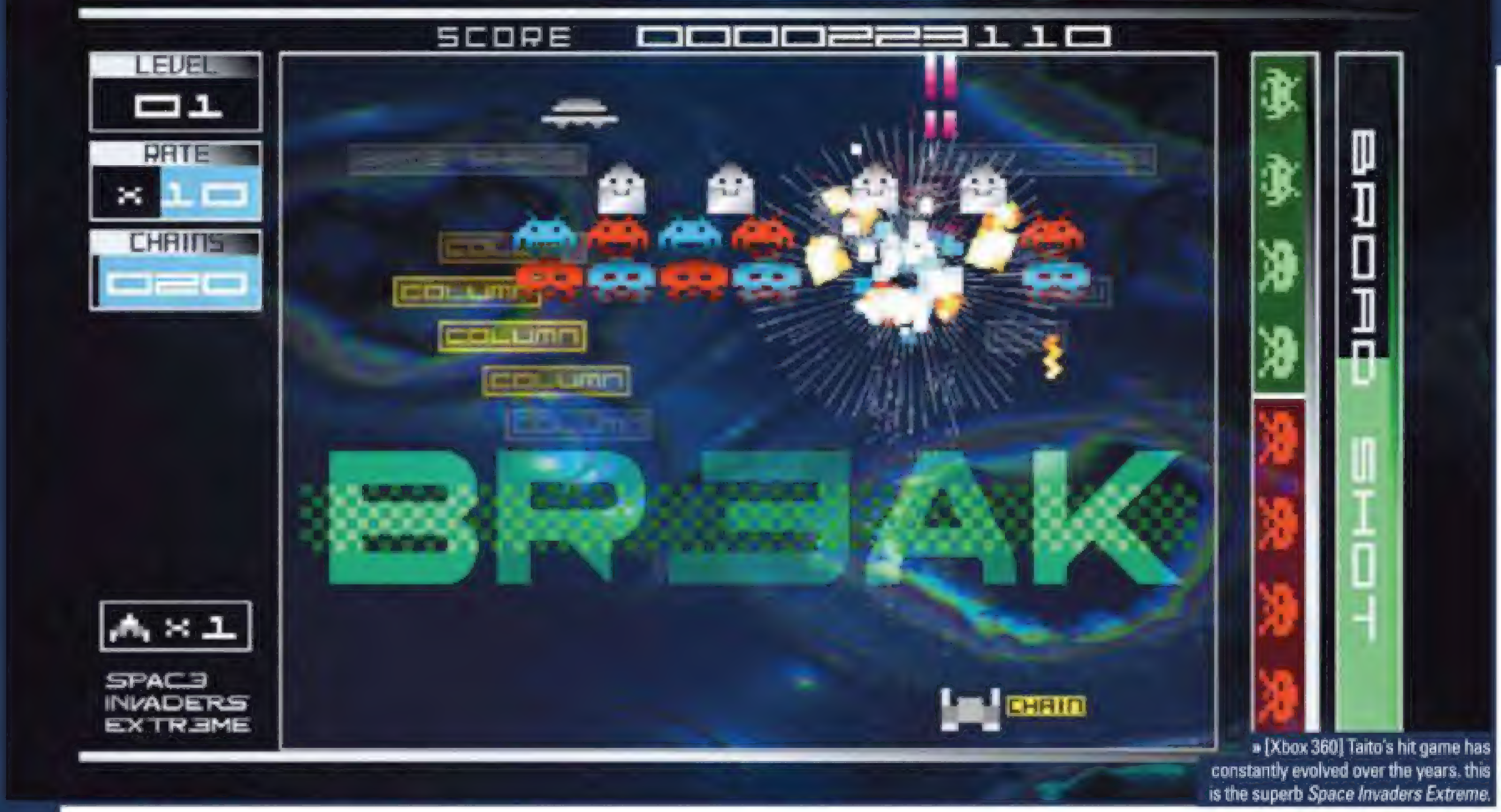
■ This splendid shooter by Sirius Software, which sees you protecting fruity supplies from alien bandits, plays like a mix of *Space Invaders* and *Galaxian*. As the aliens peel off into packs and fly towards the precious goods, you must quickly shoot them down before they make off with any.

INVADE-A-LOAD!

DEVELOPER: RICHARD APLIN

YEAR: 1987 SYSTEM: C64

■ A neat *Space Invaders* mini-game designed to entertain while the main game loaded, *Invade-A-Load!* appeared on a few budget releases (mostly from Mastertronic) and offered a pretty authentic game of *Space Invaders*. This version is incredibly hard, though, and ends abruptly once a game has loaded. But what do you expect? It was a bonus.

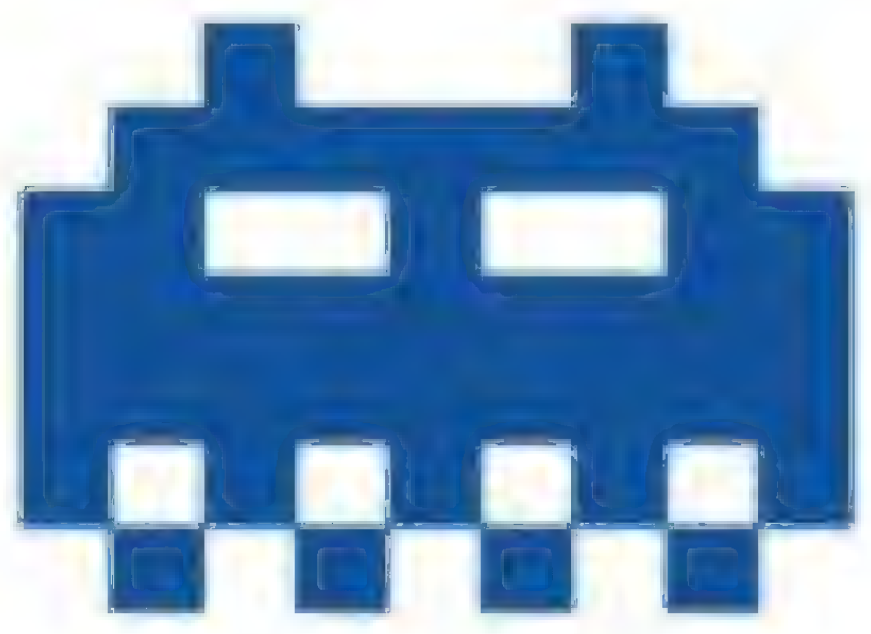


» [Xbox 360] Taito's hit game has constantly evolved over the years, this is the superb *Space Invaders Extreme.*

they liked. It was this belief that led to Bally/Midway releasing a version of *Space Invaders* on the Bally Professional Arcade/Astrocade in 1979, the same year Atari's official conversion was launched.

Atari had negotiated and was awarded the specific console licence for *Space Invaders* by January 1979 and with Bally/ Midway unaware that such a deal was taking place, the Professional Arcade version had already been created and was entering distribution. When Bally/ Midway learnt of the deal, it promptly changed the name of its port to *Astro Battle*. Atari took no legal action against Bally/Midway for *Astro Battle*'s likeness to *Space Invaders*, perhaps realising that it was the name that counted most.

Following the huge success of VCS *Space Invaders*, Atari and other companies began to see the money-making potential of securing these exclusive arcade licences. By the early Eighties, Atari had become a financial powerhouse and had no trouble securing the worldwide rights to the biggest hits for its machines.



One of the big factors that would eventually convince Atari to start sublicensing was the 2600 expansion units for the Colecovision and Intellivision by Mattel and Coleco. After a court ruled in favour for the units' release, Atari quickly realised it would be within its interests to start expanding game publishing to other platforms – a move that resulted in the formation of the Atarisoft label.

With a lack of official home conversions of *Space Invaders*, many software companies in the early Eighties got around the issue by programming their own versions. A game that was both popular and simplistic to recreate, *Space Invaders* therefore became one of the most cloned games of the early Eighties. In fact, some of the earliest games for the ZX Spectrum were 'invader' shooters inspired by Taito's classic.

Despite *Space Invaders*' global success and cultural impact, Nishikado's life remained the same. "Nothing really changed for me at the time," he told us. "The original game's hardware specs were low, so I set about planning new versions for more powerful hardware. The fact that I was responsible for *Space Invaders* wasn't known outside the company."

Like most crazes, *Space Invaders*' popularity was potent but short, and quickly Nishikado created a sequel. *Space Invaders Part II*, or *Space Invaders Deluxe*/*Deluxe Space Invaders* as it was known in the US, was released in 1979 and retained the core alien-blasting gameplay of the original. Once again players shot down wave after wave of descending alien attackers, but the gameplay was tweaked with new features that included enemies that were more aggressive, could split into packs of two (a feature Nishikado wanted to incorporate in the first game), and a flying saucer that dropped more aliens into the playing field. *Space Invaders Part II* was also in true colour, using no overlays, and featured animated intermissions between stages.

The games industry grew very quickly after the release of *Space Invaders*. Other games were quick to build on what Taito had achieved. Games like Namco's *Galaxian* would continue to make the 'invader game' popular, while later hits like Namco's *Pac-Man* and Nintendo's *Donkey Kong* kept the momentum going further with colourful cartoon graphics and less violent themes appealing to wider and more diverse audiences.

Taito's invasion had been quick and impactful, but served a very important purpose. Its Invaders had visited us and opened our eyes to a new form electronic entertainment, one that would change the world forever.

PRETTY PENNY ARCADE

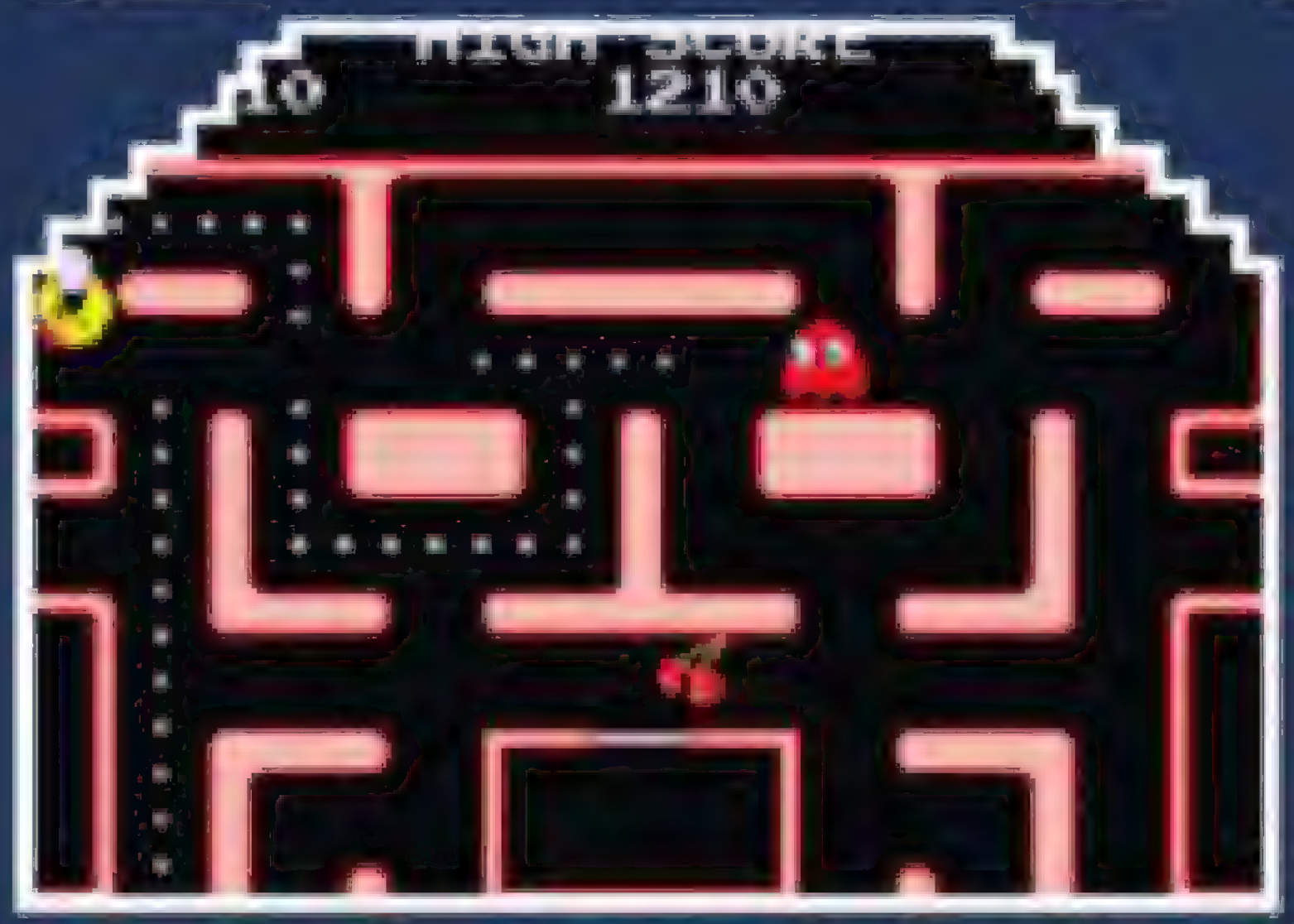
WITH AROUND 360,000 HARDWARE UNITS SOLD, SPACE INVADERS IS THE BESTSELLING ARCADE GAME OF ALL TIME. SO WHAT ARE THE OTHER BIG SELLERS? WE TAKE A LOOK...

PAC-MAN

■ Coming close to taking *Space Invaders*' crown, *Pac-Man* was the next big game to hit arcades. Designed by Toru Iwatani, it too became a videogame phenomenon and by moving arcade themes away from space and sport themes and towards more whimsical worlds, succeeded in attracting female gamers.

STREET FIGHTER II: CHAMPION EDITION

■ Selling around double the number of units of the original, this update gave players access to the boss characters, mirror matches and improved the balancing issues between fighters. It sold like proverbial hot cakes.

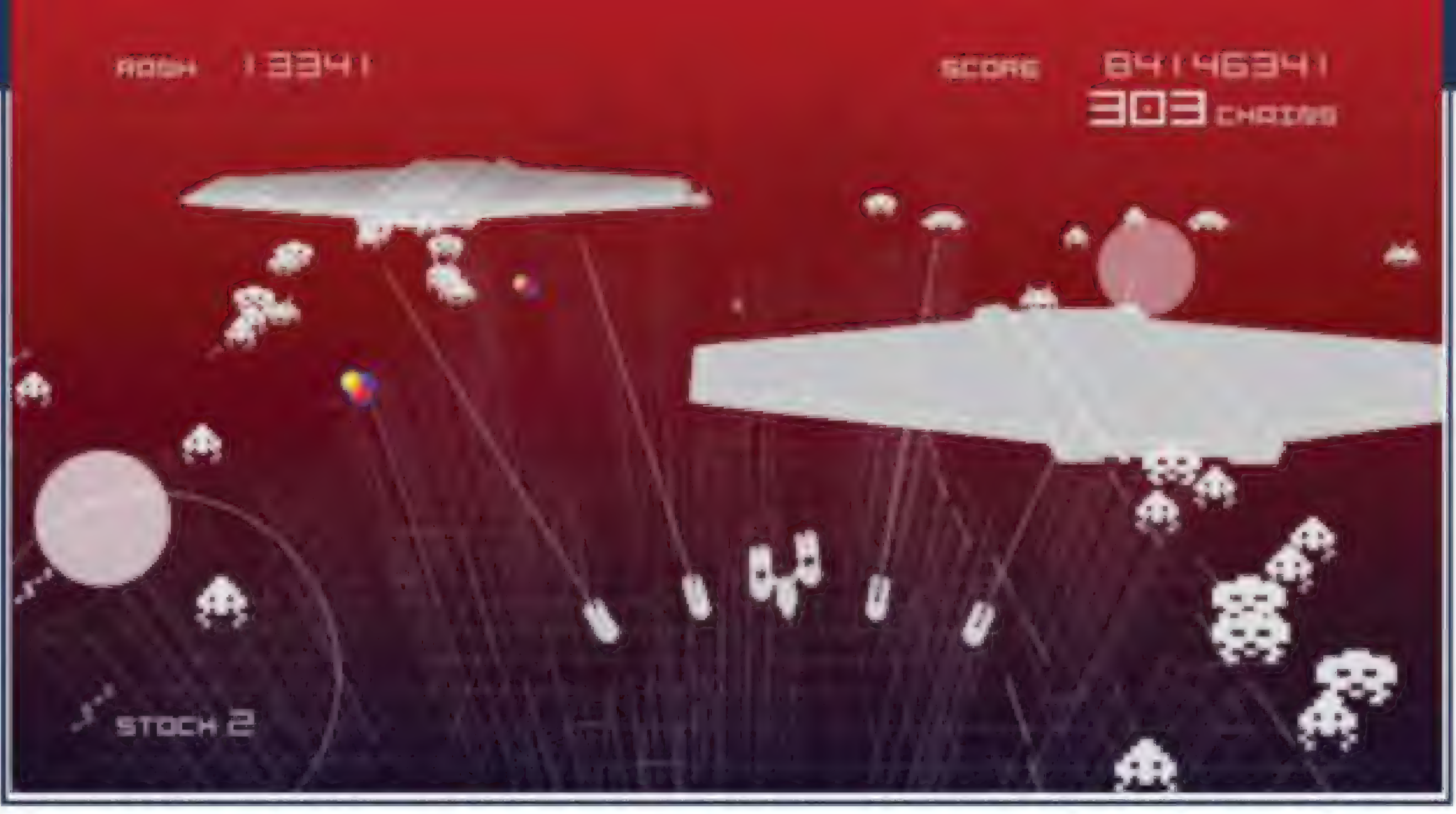


MS. PAC-MAN

■ This unauthorised sequel became so popular, it was officially inaugurated into the franchise by Namco. It started life as a *Pac-Man* enhancement kit called *Crazy Otto* before evolving into a sequel by a canny Midway, which understood that *Pac-Man* appealed to women and so created a female version.

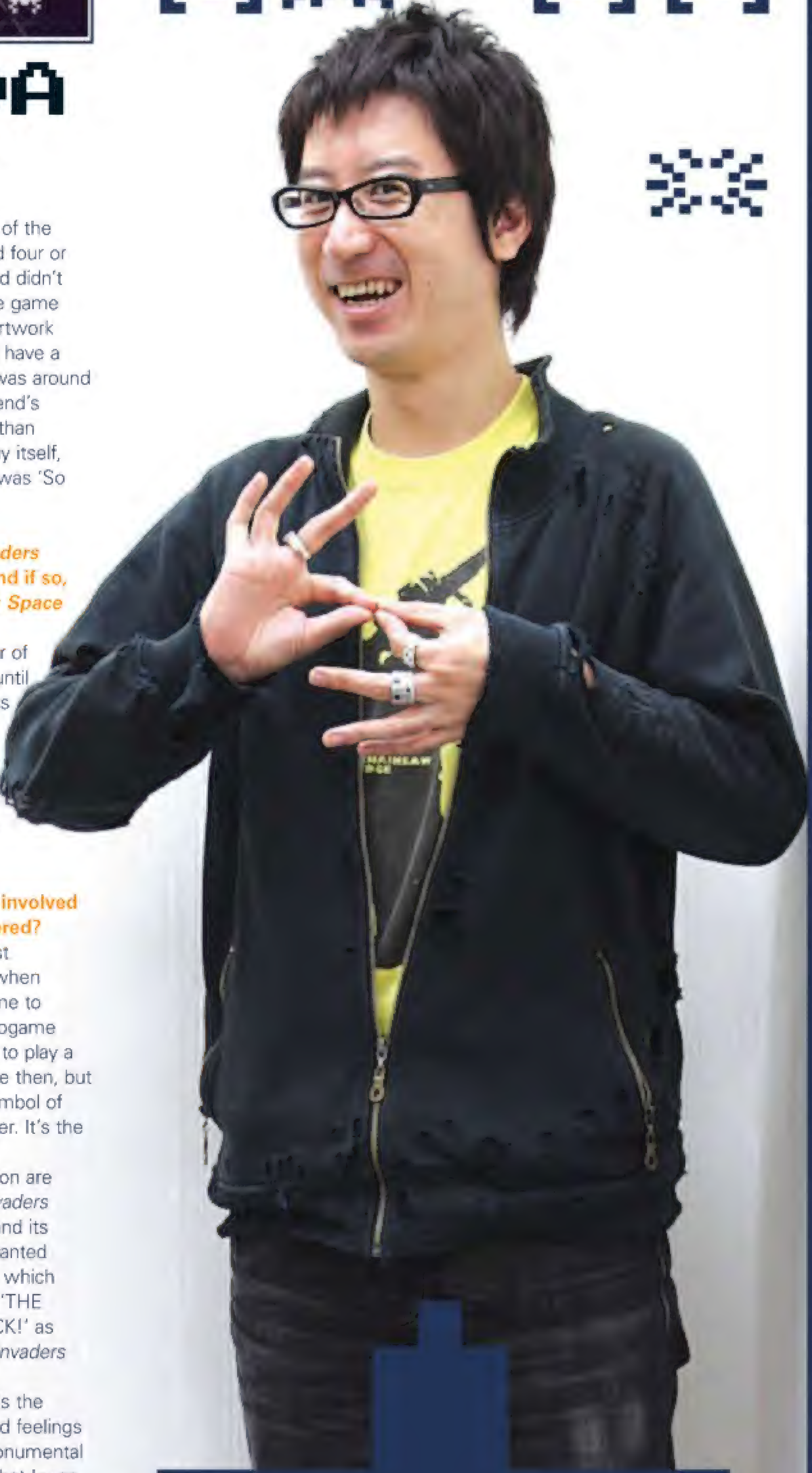
ASTEROIDS

■ *Asteroids* is Atari's most successful arcade game ever and became a regular sight in amusement arcades. Essentially 360-degree *Space Invaders*, it boasted striking vector graphics and tense gameplay – cleverly coming from targets that broke into smaller, more dangerous pieces when shot.



REISUKE ISHIDA

THE DIRECTOR OF SPACE INVADERS INFINITY GENE DISCUSSES HIS LOVE OF SPACE INVADERS



Tell us how you became a game designer and came to work for Taito?
I dreamed of becoming a game designer ever since I was a child. I went to art college, where I briefly toyed with the idea of becoming a graphic designer, but because games fuse artwork, animation and music, in the end I decided that working in game design would allow me a wider variety of tools to express myself with. I joined Taito because I was a fan of their shooting games, and because at the time Taito was active on all manner of gaming platforms, from arcade to consoles. The potential to work on a wide variety of projects appealed to me. My respect for the original *Space Invaders* also played a large part in my decision, of course.

Is it true *Infinity Gene* came about as a result of an internal challenge at Taito to come up with a way of rejuvenating *Space Invaders* for its 30th anniversary?
While it's true there were plans to release a 30th anniversary game, I don't remember it being an open call for designs. My boss asked me directly if I was interested, and when I said I was, he told to me to submit an idea. His recollection of the conversation is hazy, though, so it's possible that other people were invited to participate as well. While I was working on *Space Invaders Infinity Gene*, the console division was independently working on *Space Invaders Extreme*, so I took special care to make my project as different as possible.

***Infinity Gene* was well received by fans. How happy were you with the finished game and the reception it received?**
With every game there are always some things I wish I could have done differently, but it seems like the themes I hoped to get across with *Space Invaders Infinity Gene* were successfully communicated to the players, so I'm extremely satisfied.

Can you recall the first time you saw *Space Invaders*? How old were you and what was your impression of it?
I was a little too young to experience the *Space Invaders* boom first-hand. I'm not sure when I first became aware of the game, but I was probably around four or five years old. My neighbourhood didn't have an arcade – I only knew the game from TV – but the unique pixel artwork strongly appealed to me. I didn't have a chance to play the game until I was around 11 years old, playing with my friend's Famicom [NES] version. Rather than anything specific to the gameplay itself, my primary thought at the time was 'So this is *Space Invaders*!'

Have you ever met *Space Invaders* creator Tomohiro Nishikado and if so, did he offer you any advice for *Space Invaders Infinity Gene*?
I've met Nishikado-san a number of times, but the first time wasn't until *Space Invaders Infinity Gene* was complete, so I never received any advice. When I showed him the game, however, he commented that he liked the simple screen design and sense of speed, which made my day.

How does it feel to have been involved in a series so popular and revered?
Space Invaders was the very first videogame I had ever seen, so when I was a child *Space Invaders* came to symbolise videogames and videogame culture as a whole. I've gone on to play a wide variety of videogames since then, but *Space Invaders*' position as a symbol of gaming has only become stronger. It's the king of games.

Some in the younger generation are unaware of the role of *Space Invaders* in the evolution of videogames and its cultural impact on the world. I wanted to share that with these players, which is what prompted me to display 'THE KING OF GAMES STRIKES BACK!' as the opening message in *Space Invaders Infinity Gene*.

Space Invaders Infinity Gene is the crystallisation of my thoughts and feelings about *Space Invaders* and its monumental role in gaming history. The fact that I was able to release an official successor to *Space Invaders* is a tremendous honour and source of pride for me.

Special thanks to Rory Smith for making this article possible

THE CLASSIC GAME

SONIC 3

Developed in the US by a Sonic Team stationed at the academic-sounding Sega Technical Institute, *Sonic 3* was the most action-packed episode in the trilogy, containing some of the best set piece moments, boss battles, and co-operative gameplay, not to mention the most annoying level select cheat in game history. And though *Sonic 3* was short, ended abruptly and didn't really innovate to the same extent as its predecessors, we still think the third time was also the charm.

1 ***Trainers***
This classic power-up imbues Sonic and Tails with faster speed, making it the most fun of the lot.

2 ***Sparkles***
Another oldie, this monitor offers temporary invincibility and plays *that* catchy tune.

3 ***Bubble***
Allows Sonic and Tails to breathe underwater, bounce on the ground and deflect projectiles.

4 ***Flame***
Turns Sonic into a fireball to launch across the screen. Also acts as a shield that can deflect projectiles.

5 ***Lightning bolt***
Lets Sonic perform a slight double jump, sucks in rings and, yes, deflects projectiles.

6 ***Robotnik***
Unsubtle booby trap monitor that causes Sonic and Tails to lose all their collected rings.

MEMORABLE MOMENTS

WHY IS IT A CLASSIC?

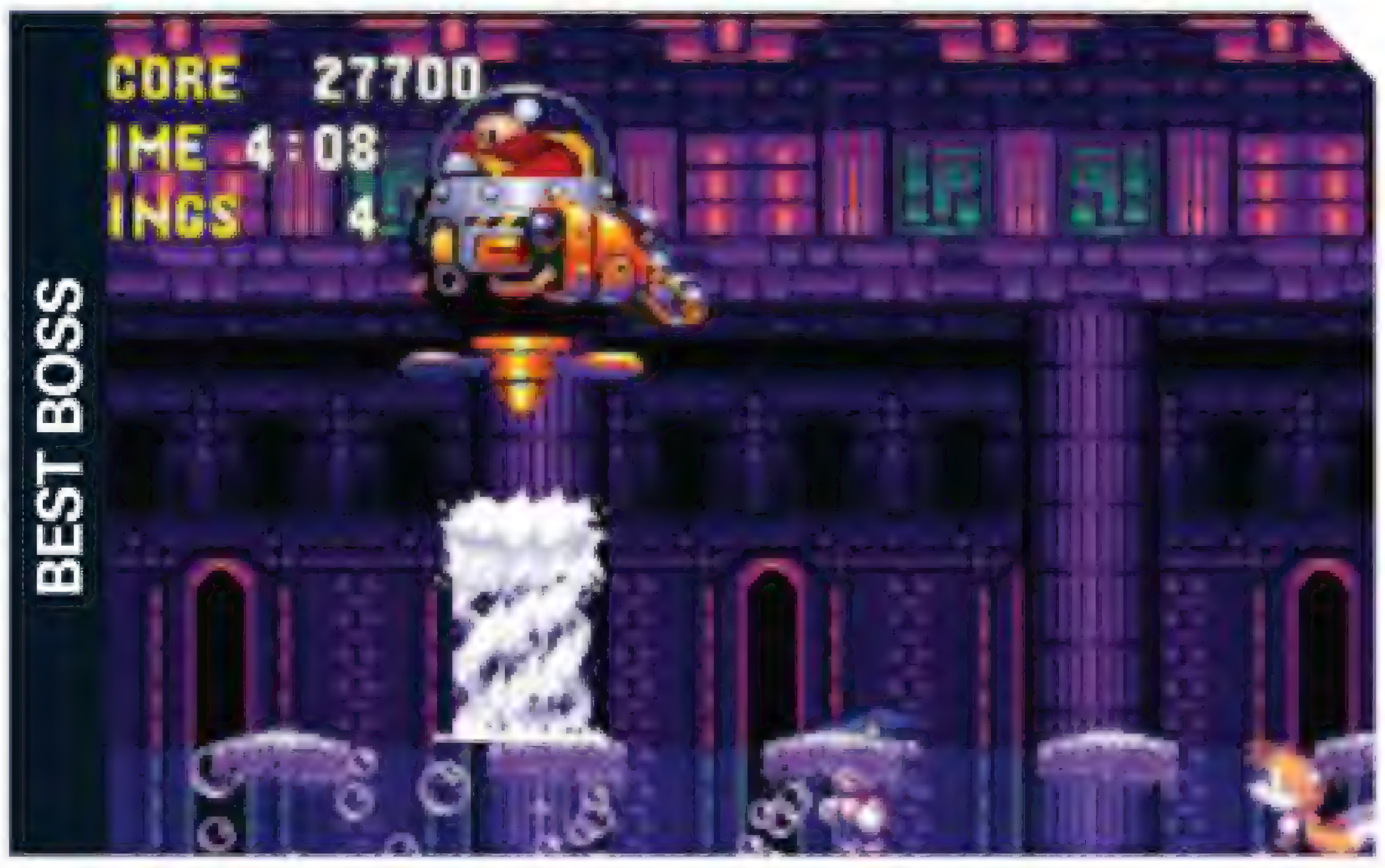
Striking that balance

Sonic is all about speed. However, to make a good *Sonic* game it's essential that the speed and stages work together. Go too far in one direction and you run the risk of harming its flow. Lean too much the opposite way and you're in danger of creating a shallow experience. All the 16-bit *Sonic* games get that balance pretty much spot on, but *Sonic 3* probably does it best. Not only are its levels packed full of variety and set piece moments, but it's incredibly fast too. The visuals and music are as good as ever, Tails really hits his prime, and it marks the debut of Knuckles the Echidna too.

BEST CHARACTER

All hail Tails

Though *Sonic 3* hosts the first appearance of Knuckles and made Sonic more badass through a selection of new shields, this award goes to Tails. Sega really thought about how to enhance Sonic's sidekick, issuing both heroes with a unique special power that was actuated by pressing the jump button while airborne: Sonic could generate a short energy burst that made him invincible for a split second, while Tails could swim, take to the sky and reach areas that Sonic couldn't. Imbuing individuality into the duo was the genius of *Sonic 3*, making Mario and Luigi's relationship feel dull by comparison.



BEST BOSS

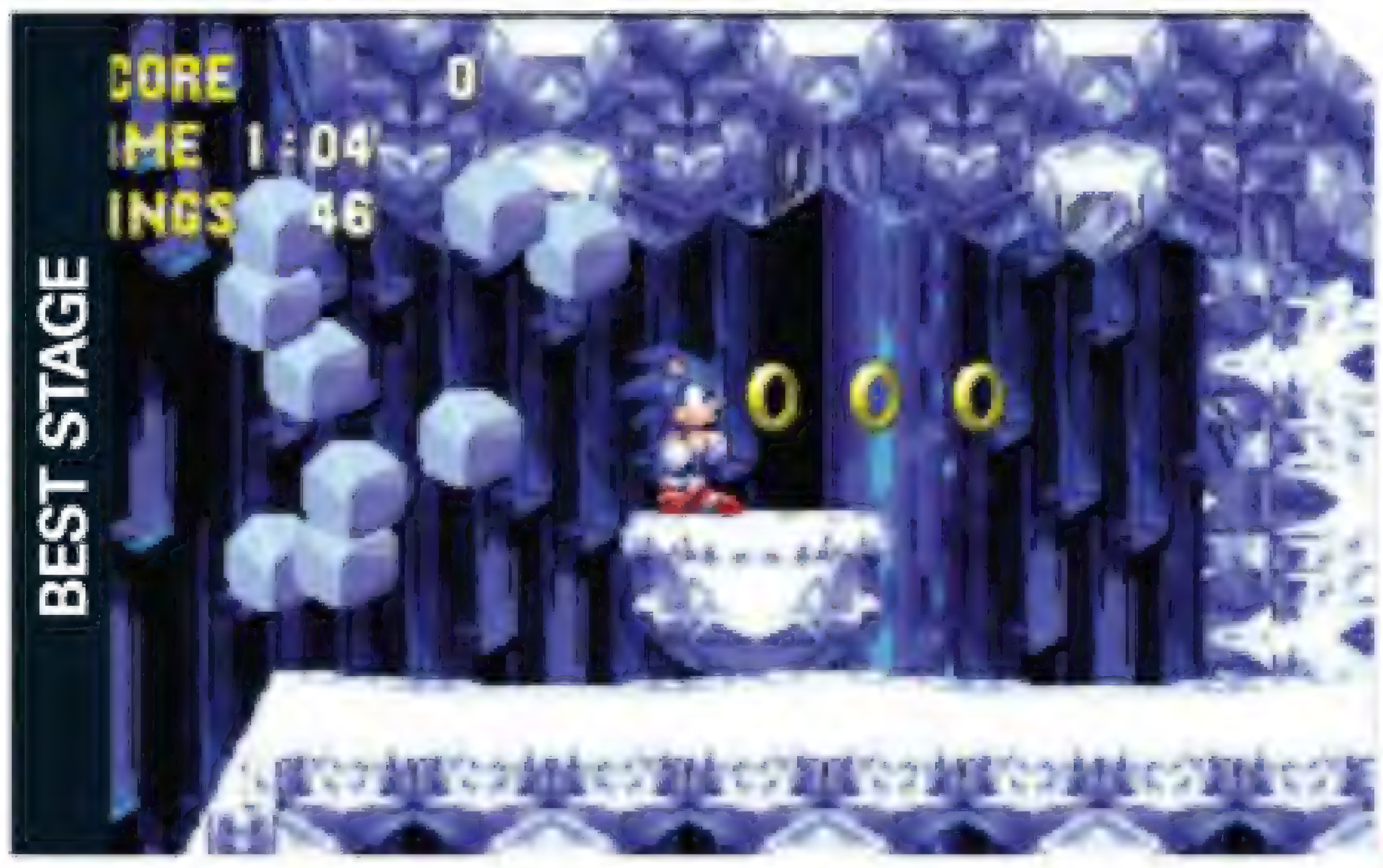
Hydro Fun Park

Sonic 3 has some of the best bosses in the series, and every act ends with one. For us, the best is Robotnik's weapon used against Sonic and Tails at the end of Hydrocity. What makes this battle so memorable is that it uses the environment to really great effect. Robotnik's vehicle utilises a fan to create a big rising whirlpool that sucks in Sonic and Tails. The doctor then drops grenades into the water that detonate and create cool water splashes that Sonic and Tails must use to launch themselves to the height needed to hit his contraption and bring him down… until the next zone.

DEVELOPMENT STORIES

Behind the scenes

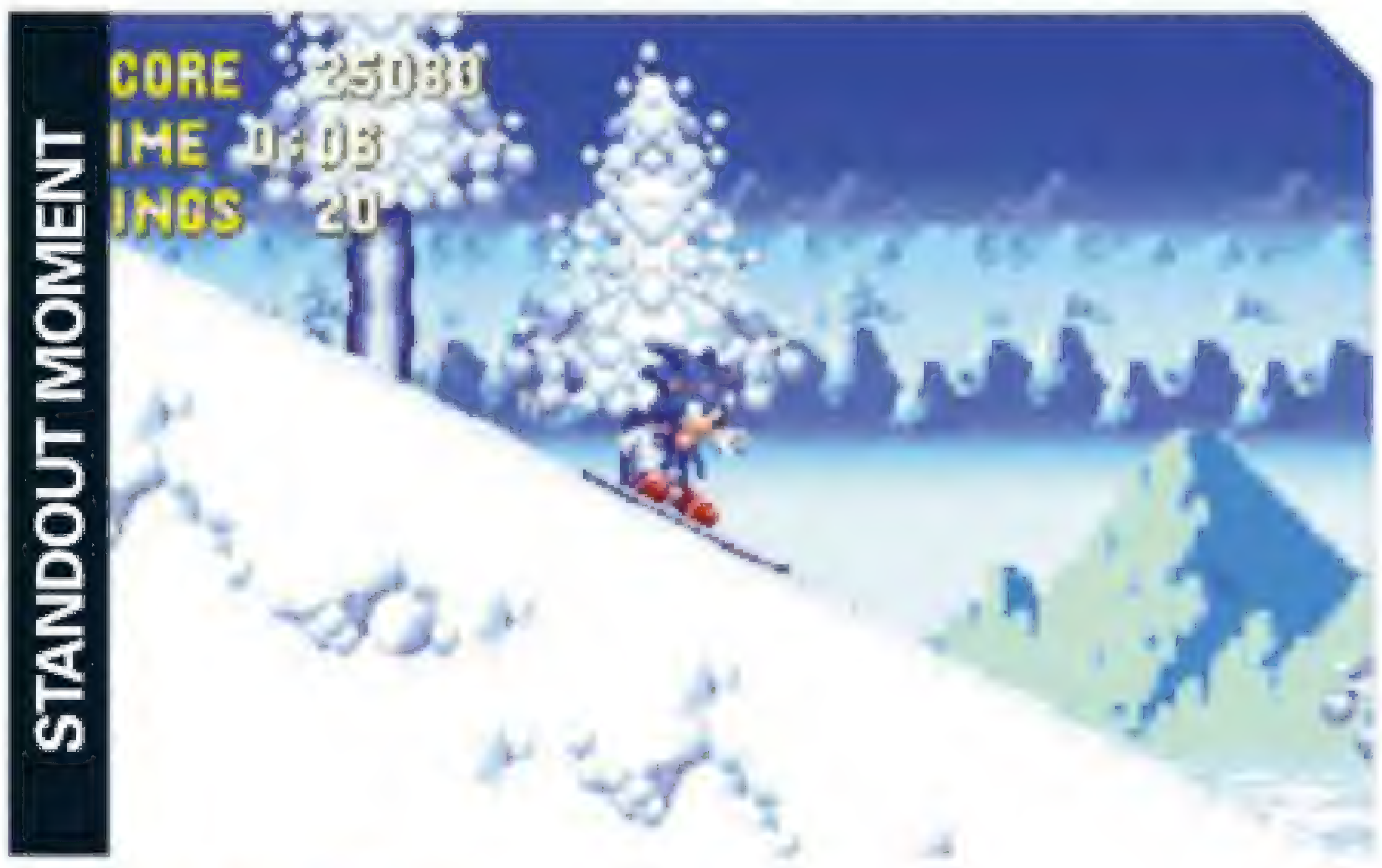
There are some interesting stories from *Sonic 3*'s development. The most famous is that Michael Jackson wrote some of the music for the game. However, due to the controversy surrounding him at the time, they weren't used. Another important development in the game's genesis is that *Sonic 3* was originally going to include the content that would later arrive in *Sonic & Knuckles* before Sega split the game into two parts due to time and cost concerns. This division may explain why *Sonic 3* ends so abruptly and is shorter than *Sonic The Hedgehog 2*, with just six acts.



BEST STAGE

Icecap Zone

Sega looked at every aspect of the previous two games and thought how they could be improved. To this end, one of *Sonic 3*'s biggest strengths lies in its level design. There are some great stages in *Sonic 3*, and picking a favourite isn't easy, but one of the best is definitely Icecap Zone. Despite being a staple of the platform genre, ice stages didn't appear in *Sonic 1* or *2*, and *Sonic 3* ensured the series' first attempt was a belter. Kicking off with a snowboarding set piece, it had great imagination and one of the best music tracks in the game. Look out for the rather subtle night-to-day cycle too.



STANDOUT MOMENT

It's snow time

Yes, it's a predictable choice, but the snowboard ride from the beginning of Icecap Zone gets our vote. It's all style and sub-zero substance, with you unable to do much during this exhilarating set piece moment, but it serves as a cool bit of exposition for the stage, as after landing on this conveniently placed snowboard and whizzing down the mountain, looking all cool and edgy, Sonic collides with a wall, awakening an avalanche that traps him inside a deep, icy cavern and leaves him to find his way out. That'll teach him to wear nothing but a pair of red sneakers and some gloves.

IN THE KNOW

- **PLATFORM:** MEGA DRIVE
- **PUBLISHER:** SEGA
- **DEVELOPER:** SONIC TEAM
- **RELEASED:** 1994
- **GENRE:** PLATFORM

What the press said… ages ago

MEAN MACHINES SEGA – 94%

"Sonic's back! Back! Back! This game re-establishes him as King of the Hill, Top of the Heap and Life Emperor of the Platform Universe. Huzzah! Huzzah!"

MEAN MACHINES SEGA
WORLD EXCLUSIVE!
STREETS OF RAGE 3
FIRST PREVIEW!
FREE! HUGE STREETS OF RAGE 3 POSTER!

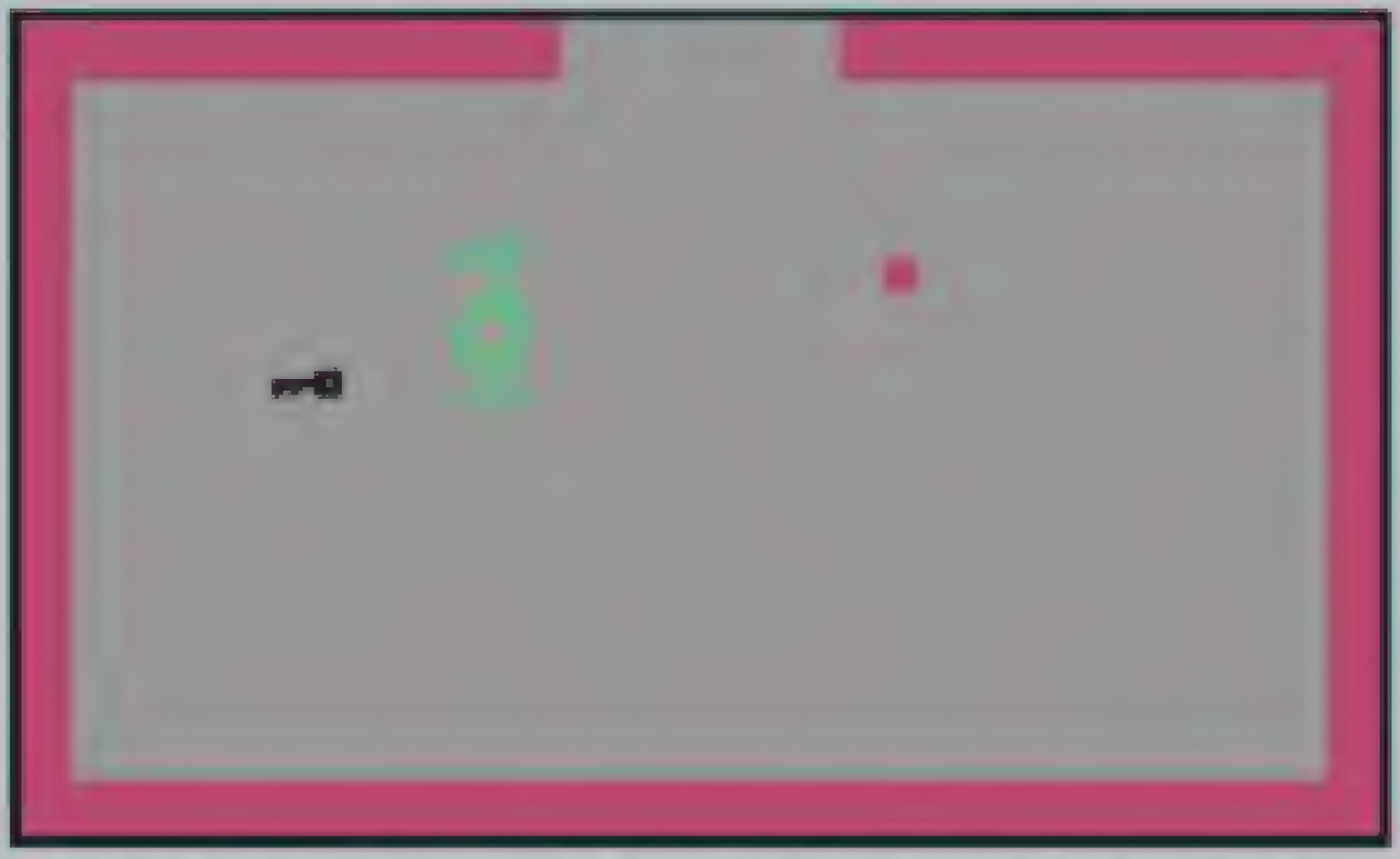
What we think

Sonic 3 might sit in the shadow of *Sonic CD* and *Sonic 2*, but there's no denying it's a great entry in the series with some of the best stages and boss battles in the Mega Drive games. Our only issue with it is that it leaves you wanting more.

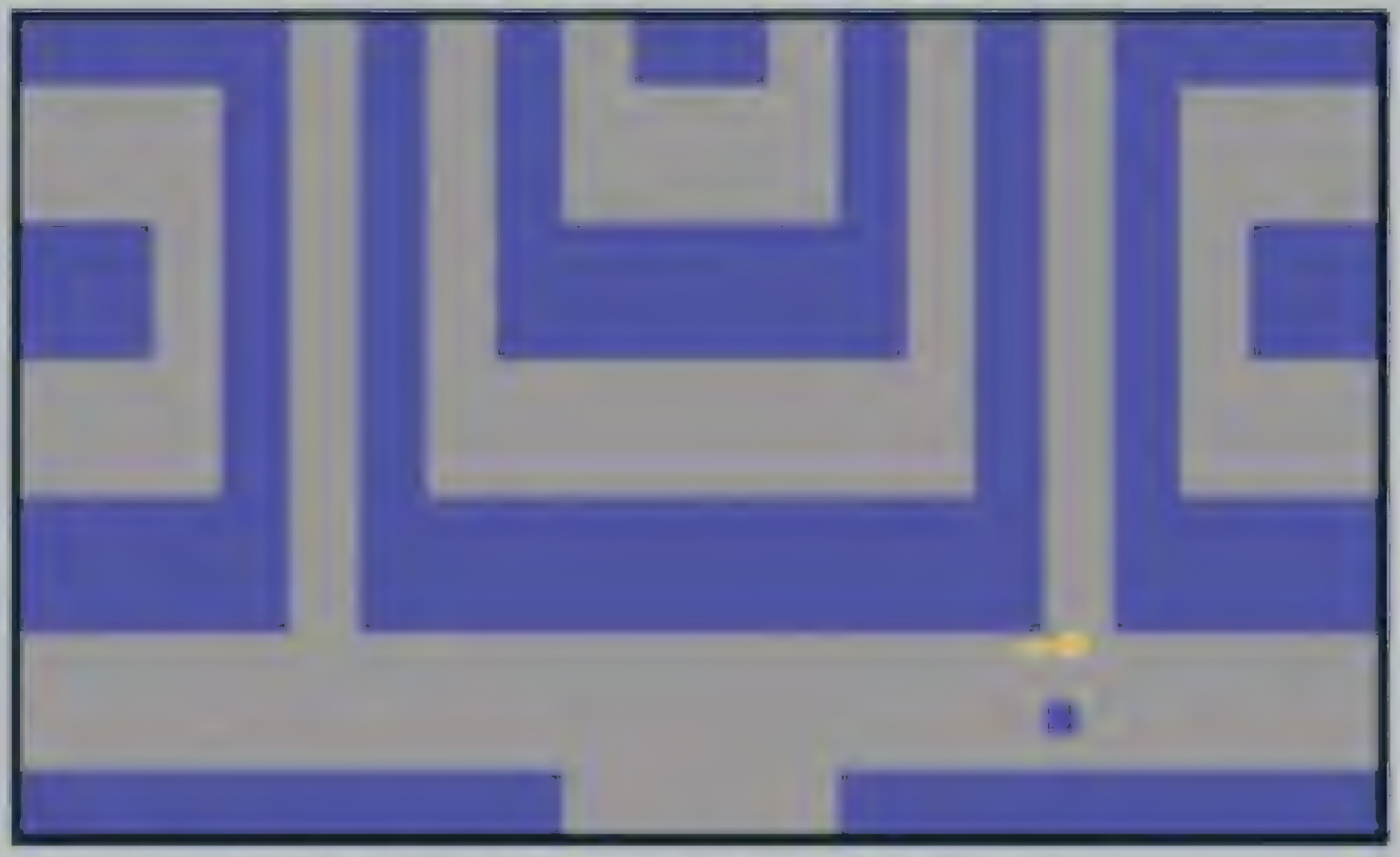
THE MAKING OF

ADVENTURE

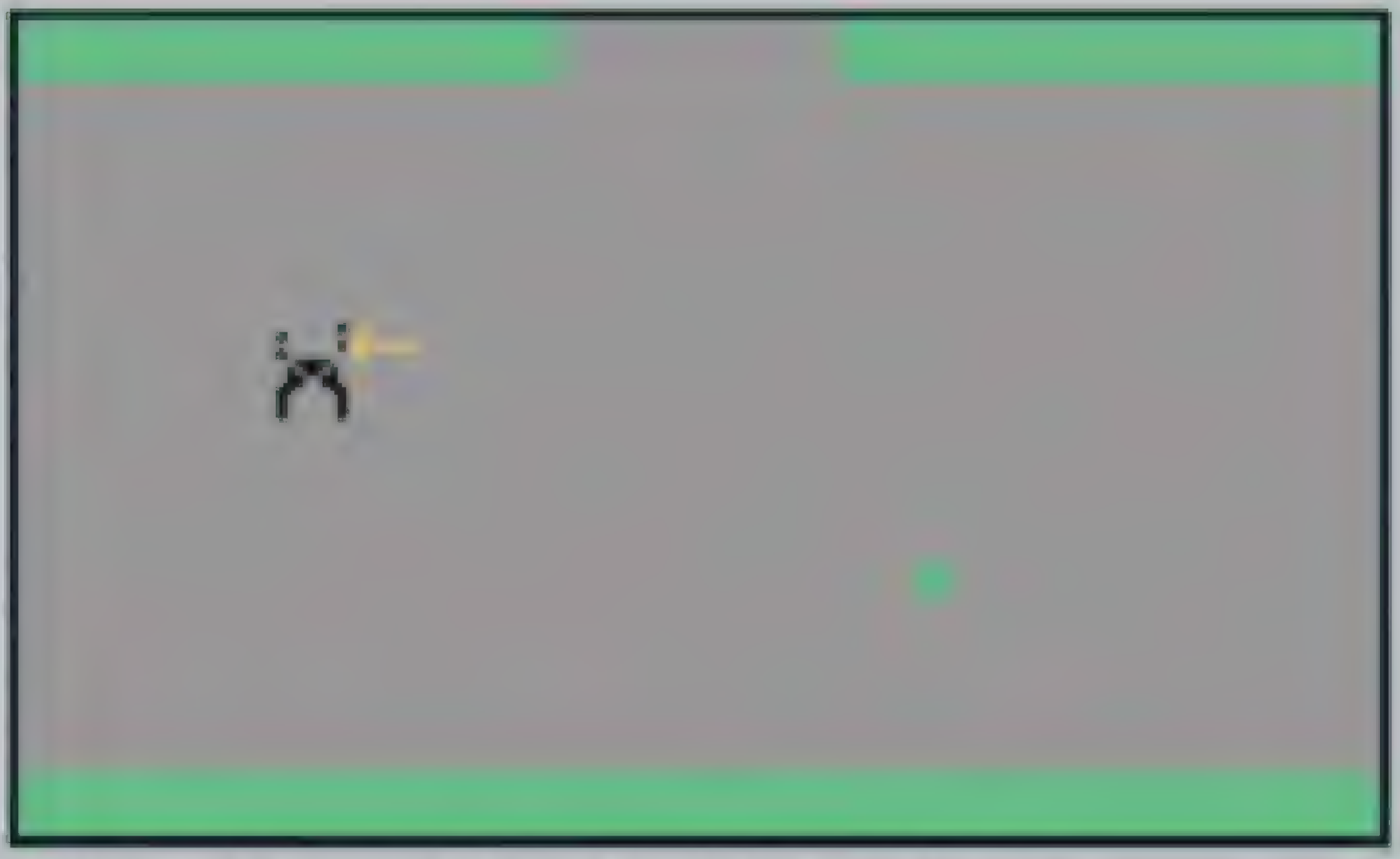
One of the most influential action adventure games, Adventure achieved the extraordinary. We speak to its creator Warren Robinett about dungeons, ducks and the first gaming Easter egg



» [Atari 2600] They might resemble ducks, but the dragons were pretty scary back then, especially when you come up against one in a 'fog of war' room.



» [Atari 2600] Robinett got the idea for *Adventure* after seeing *Colossal Cave Adventure* – which is also known as *Adventure*.



» [Atari 2600] A sneaky bat is the bane of *Adventure* players, forcing them on a wild bat chase.

We would argue that the role-playing game has evolved more than any other genre. The earliest RPGs look barely recognisable against their modern day equivalents. The imaginations of today's RPG fans have far less work to do. Everything now looks crisper, and more realistic. Dragons look like dragons, unwashed villagers look like unwashed villagers and dungeons look like Hollywood film sets. Back in the Seventies though, role-playing games were created using broad strokes and by giving players enough of them to be able to formulate the finer details of their adventures in their own heads.

Before the release of *Adventure* in 1979 RPGs were mostly text-based, running on large mainframe computers and inspired by the pen and paper game *Dungeons & Dragons*, mimicking many of its ideas and gameplay mechanics. As time and technology moved on developers started coming up with their own ideas and player interaction with their virtual worlds became entirely visual. Typing and hoping was replaced by pressing and exploring.

Many writers cite that the graphical action-adventure game, a style of RPG typified by the likes of *The Legend Of Zelda*, *Dragon Quest* and *Final Fantasy*, can be traced back to *Adventure*. One of the 2600's most seminal games, its creator Warren Robinett had a short but impactful dalliance with mainstream gaming during his tenure at Atari: he took the decision to leave the company soon after the game's release, and in 1980 co-founded The Learning Company, one of the first ever software companies to set its sights on the education market.

IN THE KNOW

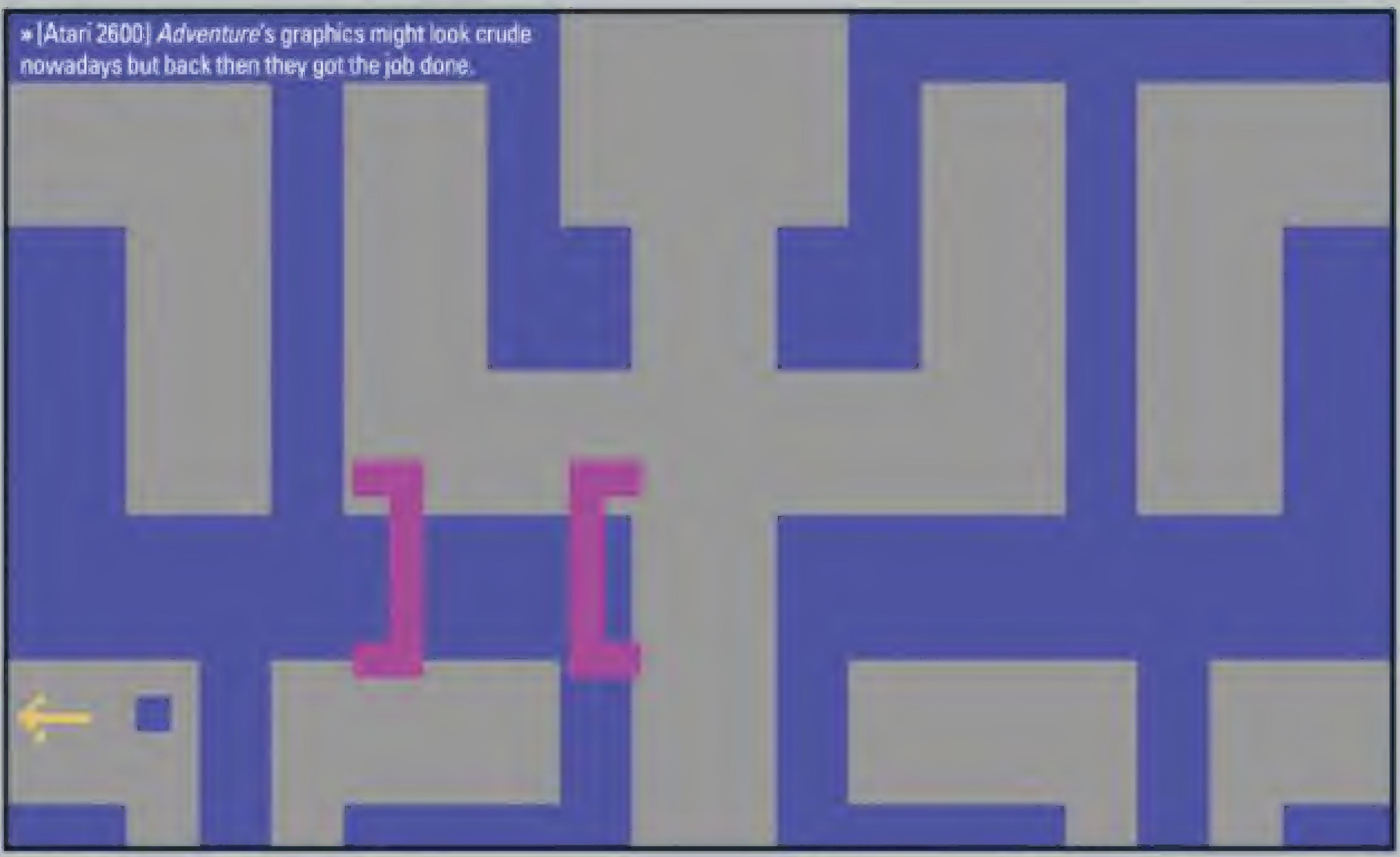
» PUBLISHER: ATARI

» DEVELOPER: IN-HOUSE (WARREN ROBINETT)

» RELEASED: 1979

» PLATFORM: ATARI 2600

» GENRE: ADVENTURE



» [Atari 2600] *Adventure*'s graphics might look crude nowadays but back then they got the job done.

Though Warren admits that his time working for Atari wasn't the most harmonious period in his career, he still remains immensely proud of what he achieved there with *Adventure*, a game which is as well remembered by gamers for the things that it introduced as much as the ambitious adventure it took them on. For Warren, it's an adventure that began in the early Seventies.

"I was interested in computer graphics when I was an undergraduate at Rice and a grad student at Berkeley. I got a masters degree in computer science at Berkeley in 1976." Warren tells us. "I had a pretty fun year in 1977 building log cabins, and bicycling across the country, but then I ran out of money and needed to go back to California and get a job. It was then I heard about Atari, and showed up there and filled out a job application. I wrote a little essay about why I would be perfect for them, and they hired me."

Warren's first 2600 game was the combat racer *Slot Racers*, a game of little cars driving around in a maze shooting missiles at each other. And it was when he was reaching the end of this project that he began looking for inspiration for his next game idea.

"My friend and housemate Julius Smith took me to the Stanford Artificial Intelligence Lab one day, where he worked, and we played the new sensation: the original text adventure game by Will Crowther and Don Woods. Its name was also *Adventure*, but it is more commonly known now as *Colossal Cave Adventure*. The game had no graphics, it ▶

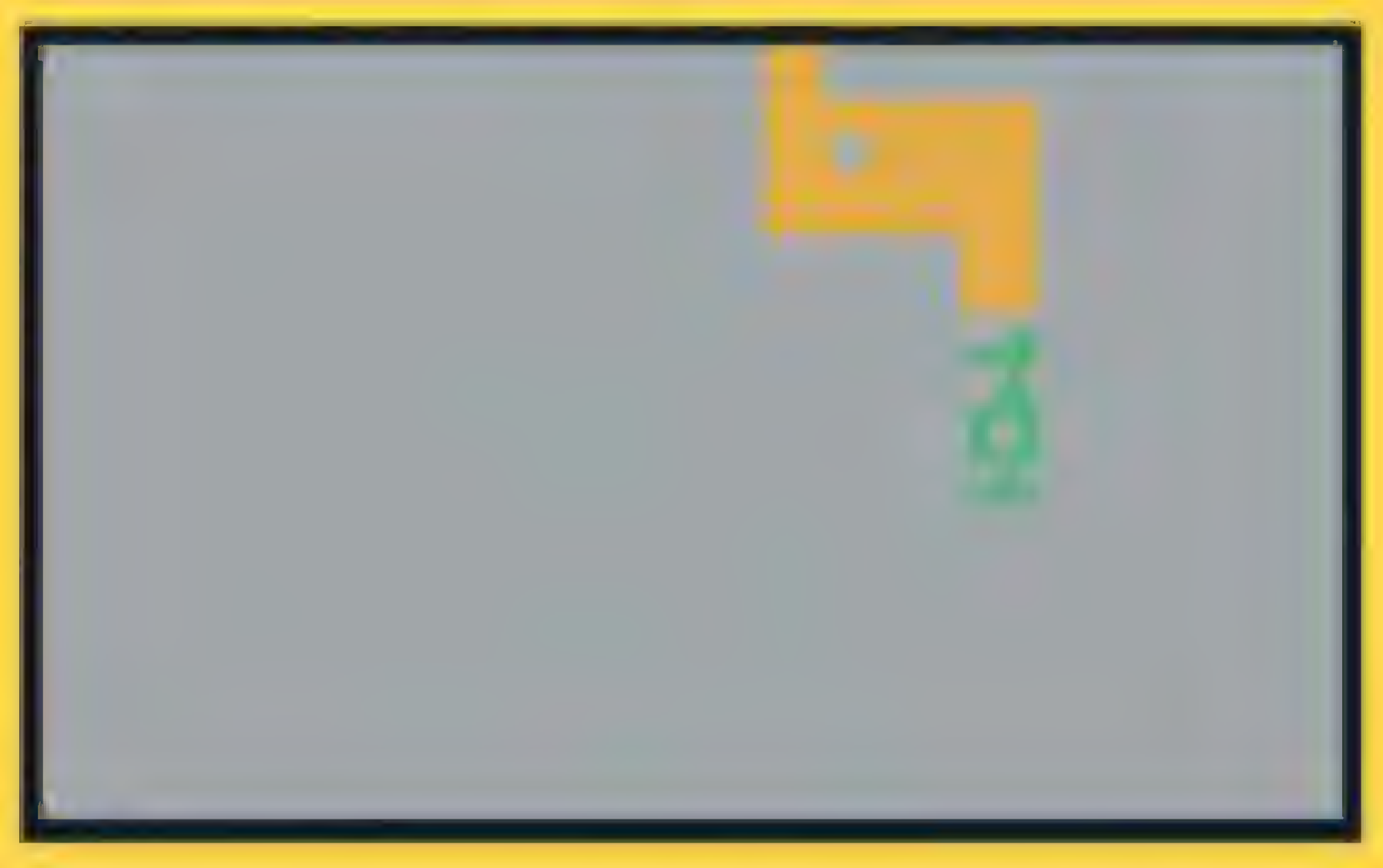
ADVENTURE
VIDEO COMPUTER SYSTEM™
GAME PROGRAM™
3 VIDEO GAMES
THREE SKILL LEVELS ONE PLAYER
CX 2613

» [Atari 2600] *Adventure* sold over one million copies, and was one of the 2600's earliest hits.

THE MAKING OF FOG OF WAR

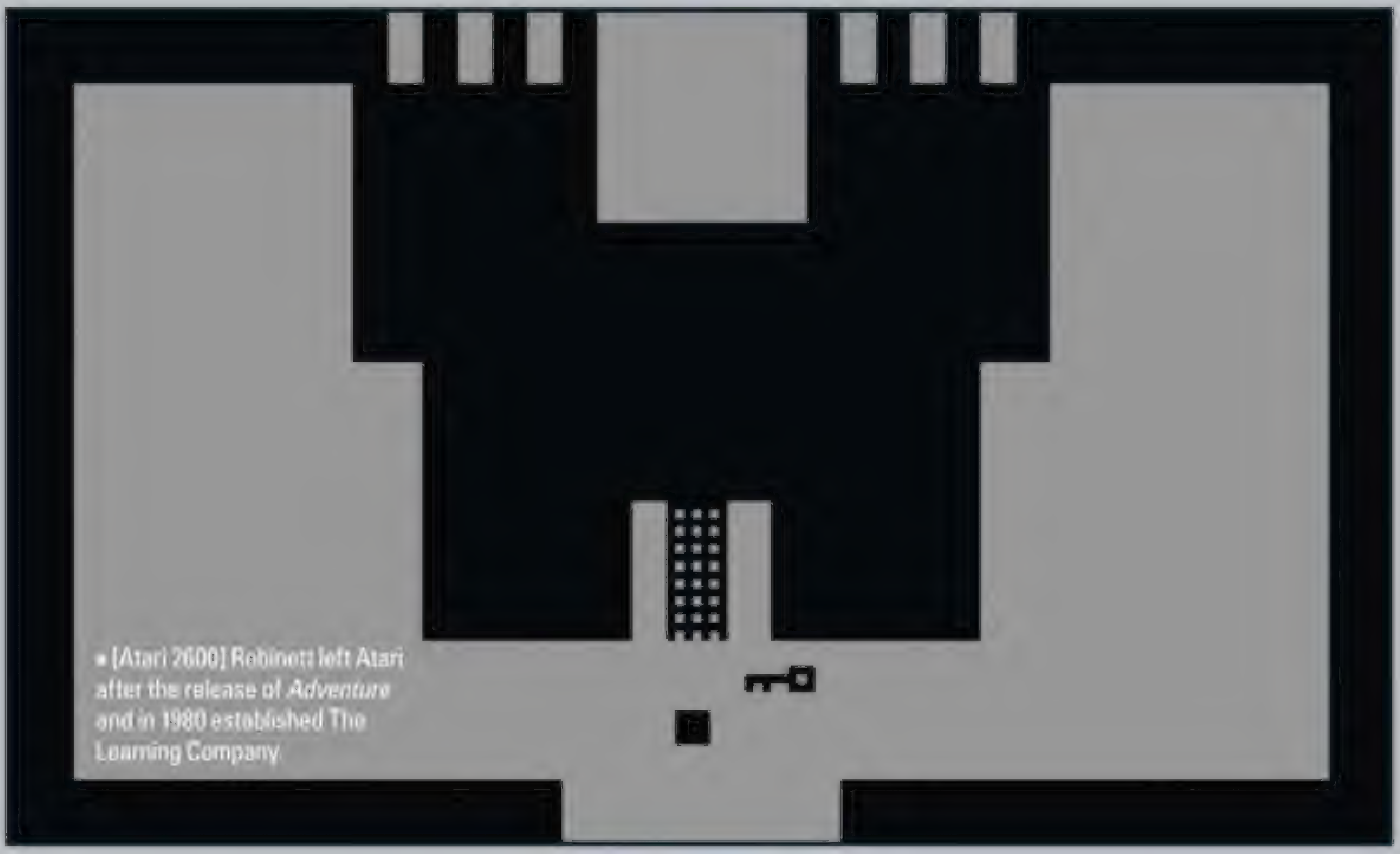
As well as giving us the first ever videogame Easter egg, *Adventure* is also notable for pioneering the 'fog of war' game mechanic. Warren explains how he came up with the concept.

"That was my idea for making a more interesting maze. It used a video-priority trick that was based on a feature of the Atari 2600 display hardware. I made the foreground and background the same colour (grey), which would normally make the maze in the foreground disappear. But by surrounding the avatar with a large square orange object that was *between* the foreground and background, the maze was "illuminated" in a small region of the screen surrounding the avatar.



"I was actually trying to duplicate the dark rooms of the text adventure, in which you needed a lamp to dispel the darkness. So the square "circle of radiance" of the lamp was the best the 2600 could do. In the end, I got rid of the lamp object, because I only allowed one object to be carried, and if you were carrying the lamp, you couldn't carry anything else. So the "circle of radiance" just turned on in certain rooms. I called mazes of this type "catacombs". I never used the words "fog of war".

THE MAKING OF


» [Atari 2600] Robinett left Atari after the release of *Adventure* and in 1980 established The Learning Company

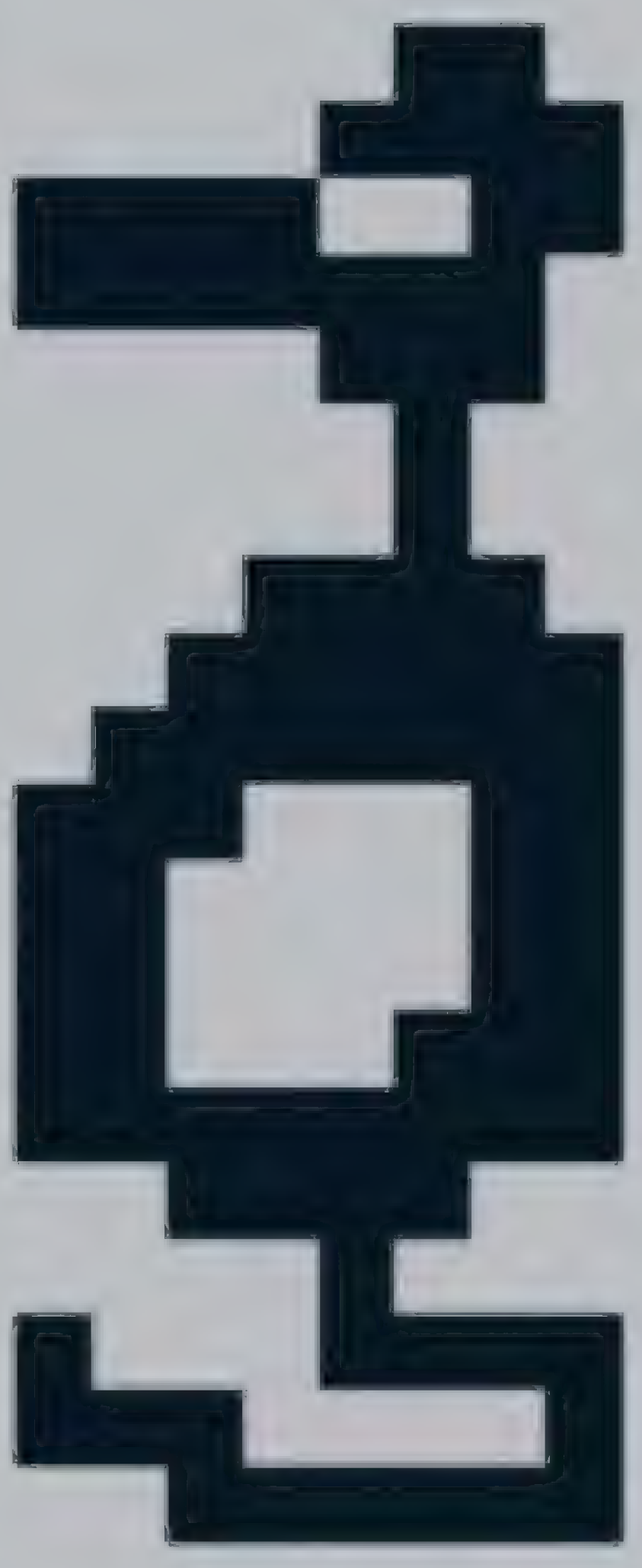
▶ was all text: you typed a command and it would execute your command, and then print out (in text) a description of where you were in the game world, and what objects or creatures were present there. I became enamoured with this concept (an interlinked network of rooms, which contained objects which could be carried from place to place, some of which allowed you to get past obstacles in the game) and thought I could transmogrify it into a videogame for the Atari 2600. My idea was to show one room at a time on the screen, and show objects in the room as little shapes on the screen, and show the player's position with another little shape."

Warren's boss though was unconvinced and felt such an idea so outlandish it needed to be quashed from the outset. A console with very limited technical resources designed to offer simple gaming experiences and basic adaptations of early coin-ops, an adventure game would certainly be a stretch for the 2600. Even the numbers agreed.

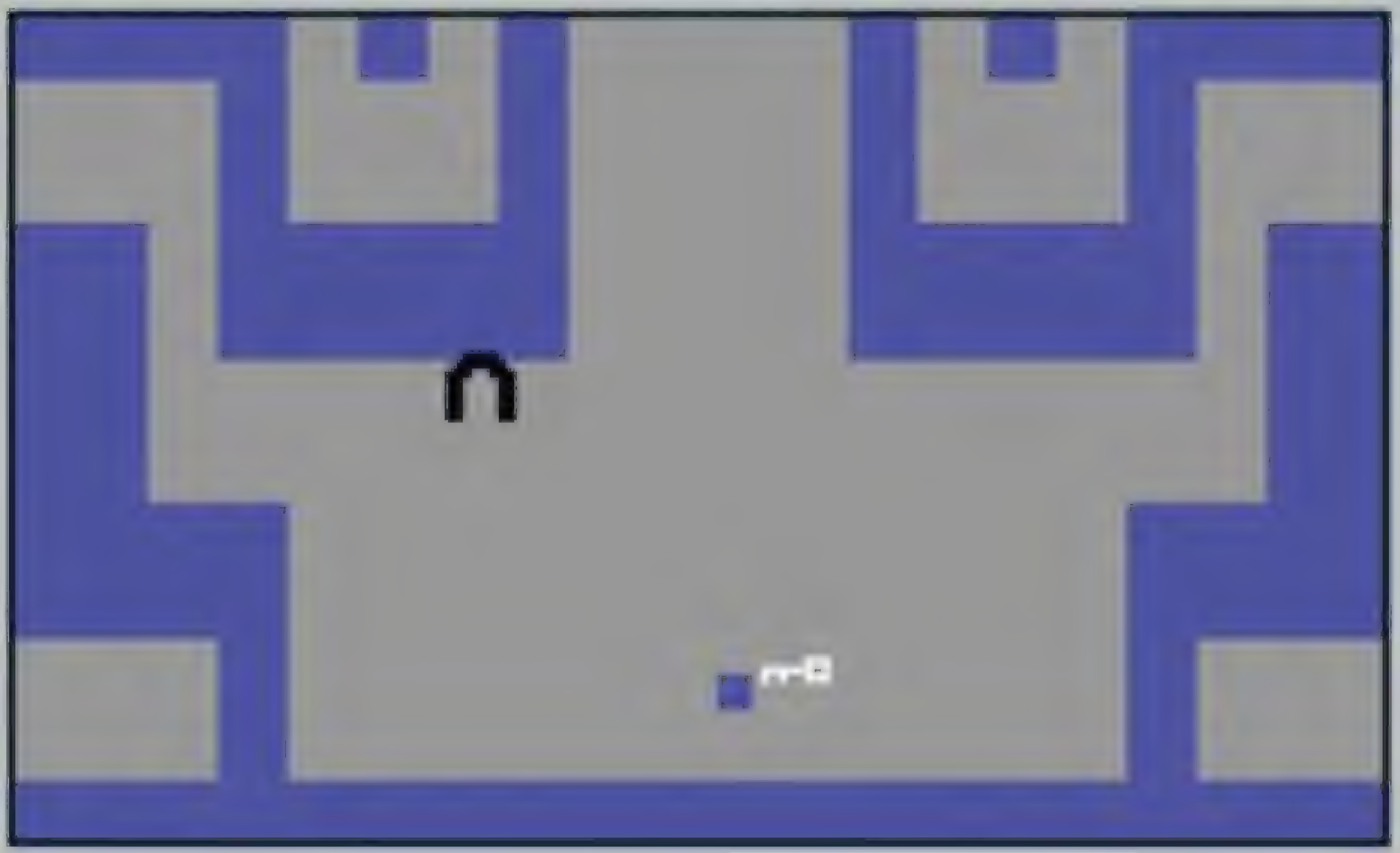
"My boss at the time knew that Crowther and Woods's game required more than 100 Kbytes on a mainframe, and we had 4K bytes on the 2600," explains Warren. "So he told me it was impossible, and not to work on it. I didn't ever convince him. I defied him by creating the prototype of *Adventure*. He told me I was 'hard to direct'. My co-worker John Dunn laughed when I told him this, and said 'I'm impossible to direct.' Most other people at Atari could see it was an interesting new idea for a game."

Like many 2600 games developed at that time, *Adventure* was a one-man show. Not only did Warren come up with the concept, he also created the story, wrote the code, drafted the manual, and created all the graphics and sound effects, working 15 hour days at various points in its development. He even arranged his own QT, testing *Adventure* out on kids until he was satisfied. But while this autonomy allowed Warren to create *Adventure* entirely in his vision, its development wasn't entirely plain sailing.

"*Adventure* took a year to create, from start to finish," says Warren. "But I got somewhat stuck when *Adventure* was in mid-development – stuck in the sense that I wasn't satisfied with the game, but wasn't quite sure what it needed. So I took a break from it for a few months, and implemented the interpreter for the *Basic Programming* cart. Then I finished up both *Adventure* and *Basic* at the same time. What I was stuck on was that it just wasn't that interesting with a network of big open rooms, and a few dragons chasing you. At that point, there were no mazes, no bridge, no bat, and no magnet. I wasn't sure, initially, that it would be possible to make asymmetrical mazes from symmetrical pieces (the maze graphics in each room were constrained to be symmetrical by the display hardware), but it turned out that you *could* make good mazes. The existence of mazes provided a reason for the bridge object to exist – to cross maze walls – and a reason to invent the magnet – to retrieve the key you accidentally dropped in a maze wall. It wouldn't have been all that great a game if I had not been allowed the time to come up with these additional elements."



» [Atari 2600] Atari's stance on not giving its programmers credit not only resulted in the famous *Adventure* Easter egg but also led to coders leaving the company to setup their own game studios – such as Imagic and Activision.



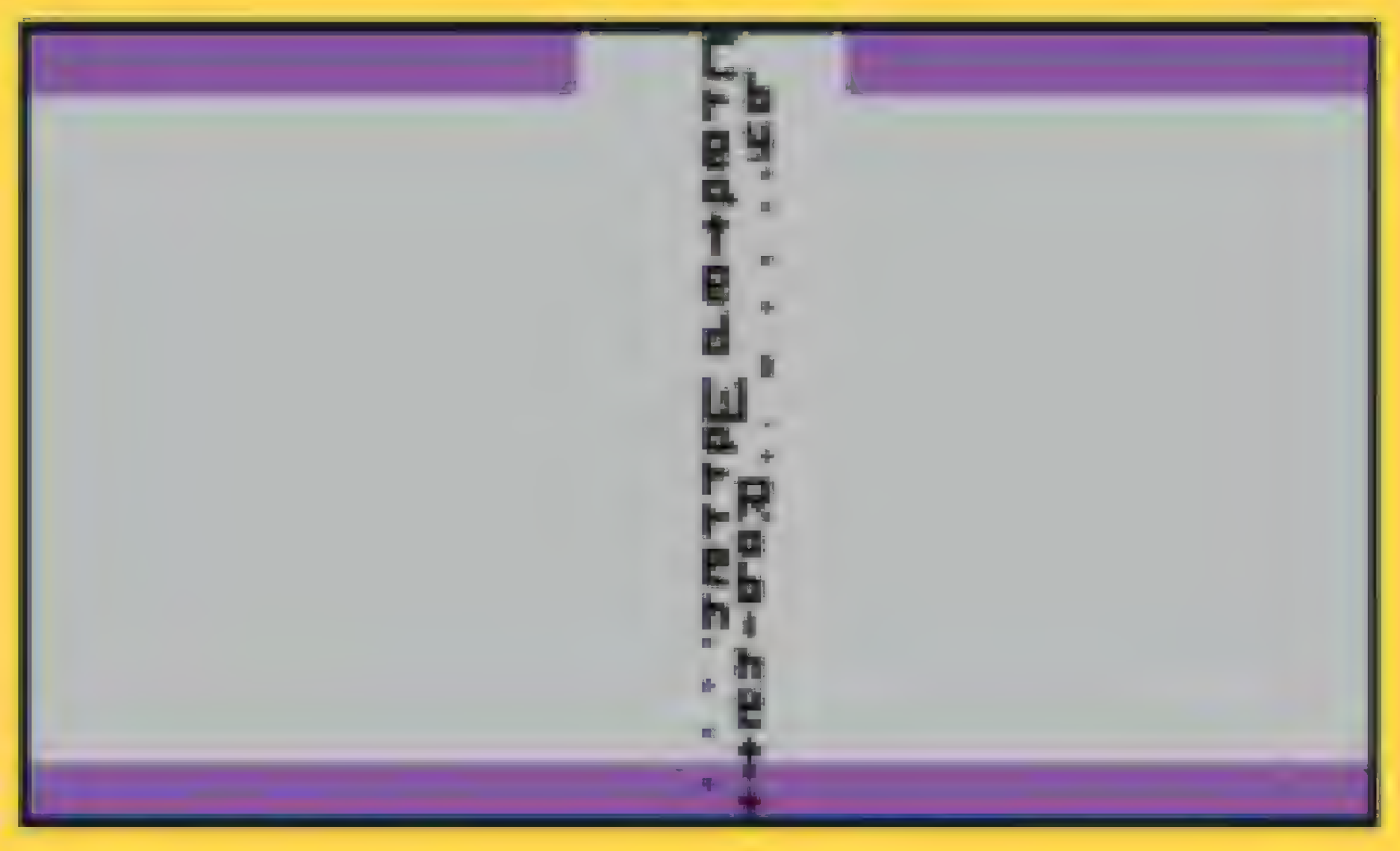
Of course, there was also the big issue of the 2600 itself, whose design goal was that it was supposed to enable the arcade games *Pong*, *Tank*, and "maybe a few other games", explains Warren. Adding that the 2600 was "the weakest possible graphics engine on which you could actually build a videogame" and breaking down the technical challenges he had to circumvent.

"The Atari 2600 had 4Kbytes of ROM memory (for program, graphics data, and sound effect data), 1/8 Kbytes (128 bytes) of RAM memory (for program variables and the stack) and a slow, weak processor: the 6502 (8-bit arithmetic, no multiply or divide instructions, no floating point, and clock speed 1.2 MHz). The graphics hardware was also very limited (just two decent hardware sprites, and a low-resolution screen with 160 x 96 pixels). It was hard to do much of anything on this system, with these resources. So it was absolutely critical to be a skilled and efficient programmer. Otherwise, you could not fit your program into the 4K."

Though previous role-playing game worlds were constructed from text, *Adventure*'s world stood out by being bright, colourful and entirely graphics based. Though gamers below a certain age will probably consider *Adventure*'s visuals to be crude and abstract, as touched on, Warren could only work with the limited tools and memory available, and this resulted in the hero of his game being a simple square and the three enemy dragons – Yorgle, Grundle and Rhindle – rather resembling something else.

"It never occurred to me that the dragons looked like ducks, at the time," says Warren. "Their behaviour, at least, was menacing – they chased you, and ate you if they caught you."

Beneath their menacing mallard-like exteriors though, they were pretty sophisticated beasts. "The dragons were actually implemented as finite-state machines." explains Warren. "A dragon had four states, which I called Chasing, Biting, Swallowed-Man, and Dead, and a different graphic for each. Its behaviour also varied according to what state it was in. Transitions between states were



» [Atari 2600] The famous Easter Egg in all its cheeky glory, marking another gaming first for *Adventure*.

triggered by game events, such as the dragon touching the player's avatar (which I called the 'Man'), or by the sword touching the dragon. I also named the bat 'Knubberub', but this name never made it into the manual. Too weird, I guess."

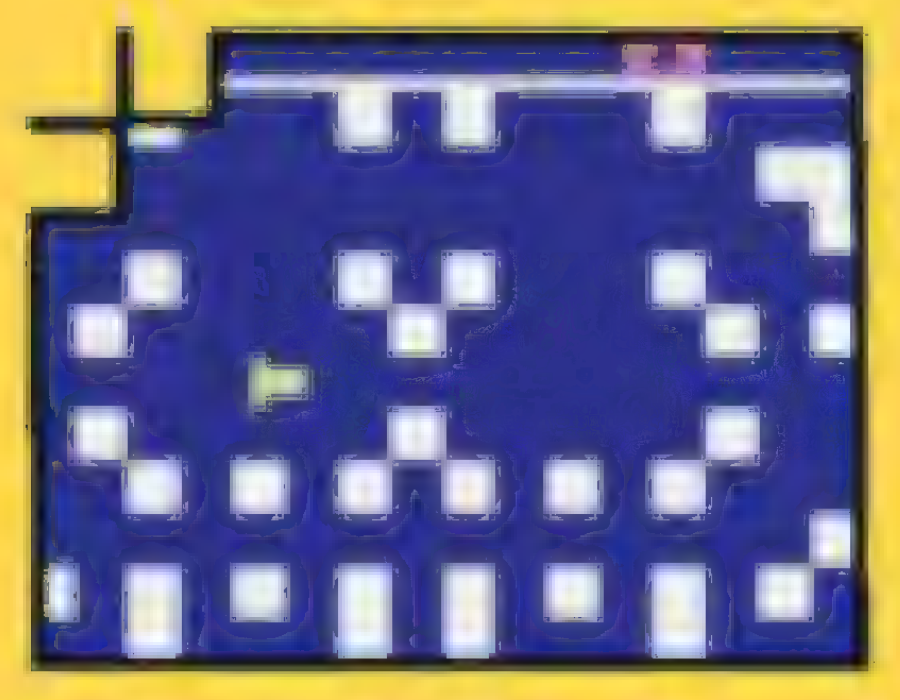
Given how hard Warren worked on getting Adventure the green light and made, it is understandable that he felt he should be given credit for all his hard work. But at the time Atari was notoriously against giving its programmers recognition in its games, a fact that led to an irritated Warren famously sneaking the credit 'created by Warren Robinett' into one of the rooms in the game – a cheeky act that inadvertently firmly secured his name inside videogame history books by creating the earliest known example of a videogame Easter egg.

So how did his bosses react when the credit was finally discovered? "I don't know. I didn't work there any more by then," says Warren. "The other game designers were amused."

With Warren clearly something of a determined and rebellious game designer back then, we wondered if there was actually anything that he wanted to add or implement in *Adventure* but was unable to. And figuring we already knew the answer, we were surprised by the response that he gave.

"I was satisfied with it when I handed it off to be manufactured, but there *was* one thing I didn't get a chance to do. Since the 2600 had two joystick ports, but *Adventure* was a one-player game and only used the left port, it occurred to me that you could do something interesting with the other port. You could link two 2600s with a cable such that there could be two avatars, each controlled by their own joystick, and you would see each other if you entered the same room. In other words, make it a multiplayer game with two players in the same game world. I actually built the cable but I was nearly out of memory in the ROM, and did not try to implement this."

> "It never occurred to me that the dragons looked like ducks"
>
> WARREN ROBINETT ON THE INFAMOUS ENEMY DESIGN



DEVELOPER HIGHLIGHTS

SLOT RACERS
(PICTURED)
SYSTEM: ATARI 2600
YEAR: 1978

MISSILE COMMAND
SYSTEM: ARCADE
YEAR: 1980

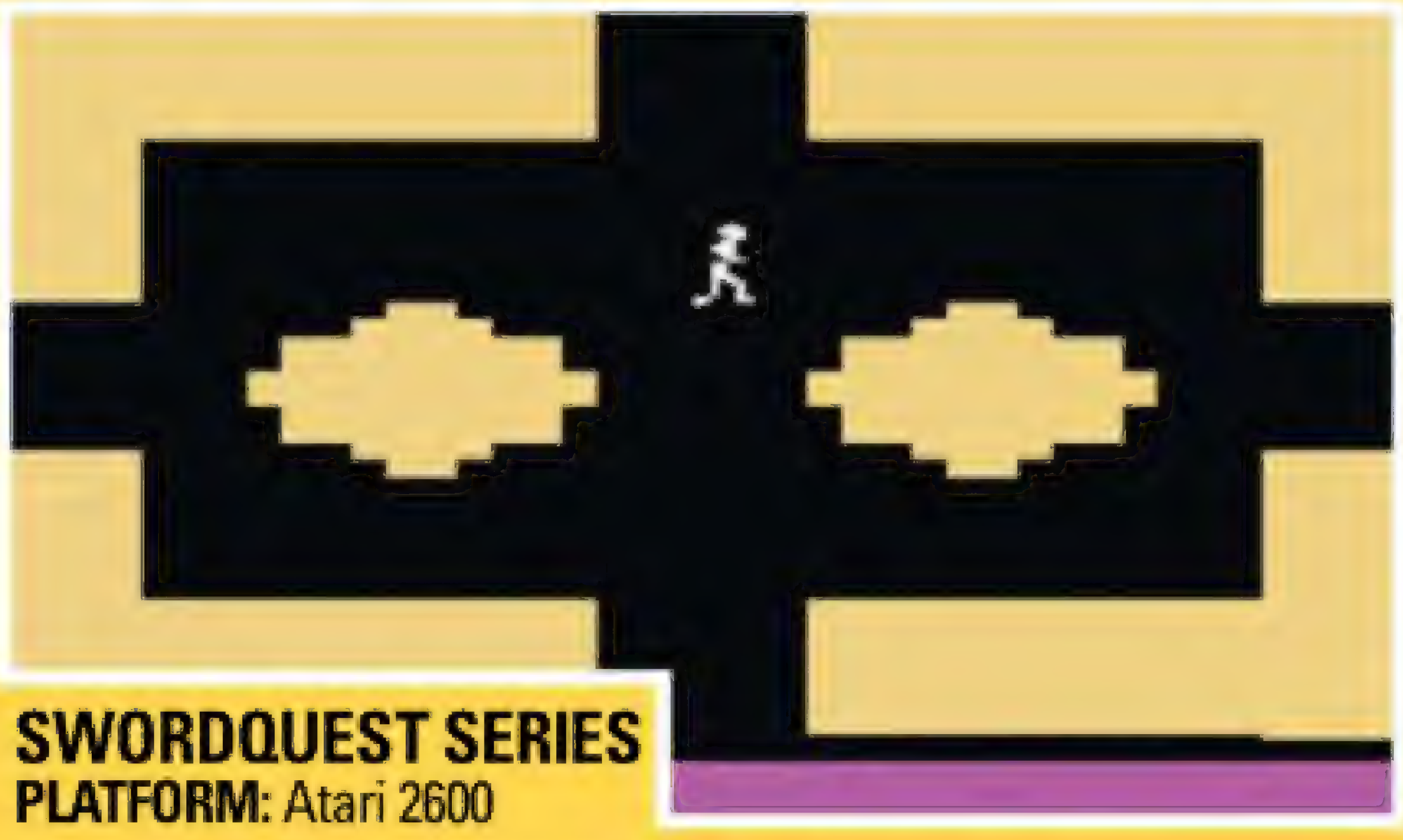
PONG
SYSTEM: ARCADE
YEAR: 1972

With that revelation ringing in our ears, and us now pondering how amazing the game would have been embarking on the adventure with a friend (Frodo and Samwise style), we finish up by asking Warren if he has played any of the sequels that *Adventure* inspired. He tells us he hasn't, and we can understand why. We get a sense that *Adventure* was a private and personal project for Warren, but also a testing adventure he was satisfied he'd completed and was happy to close the book on.

For more information about *Adventure* visit Warren's website: www.warrenrobinett.com

THE FURTHER ADVENTURES

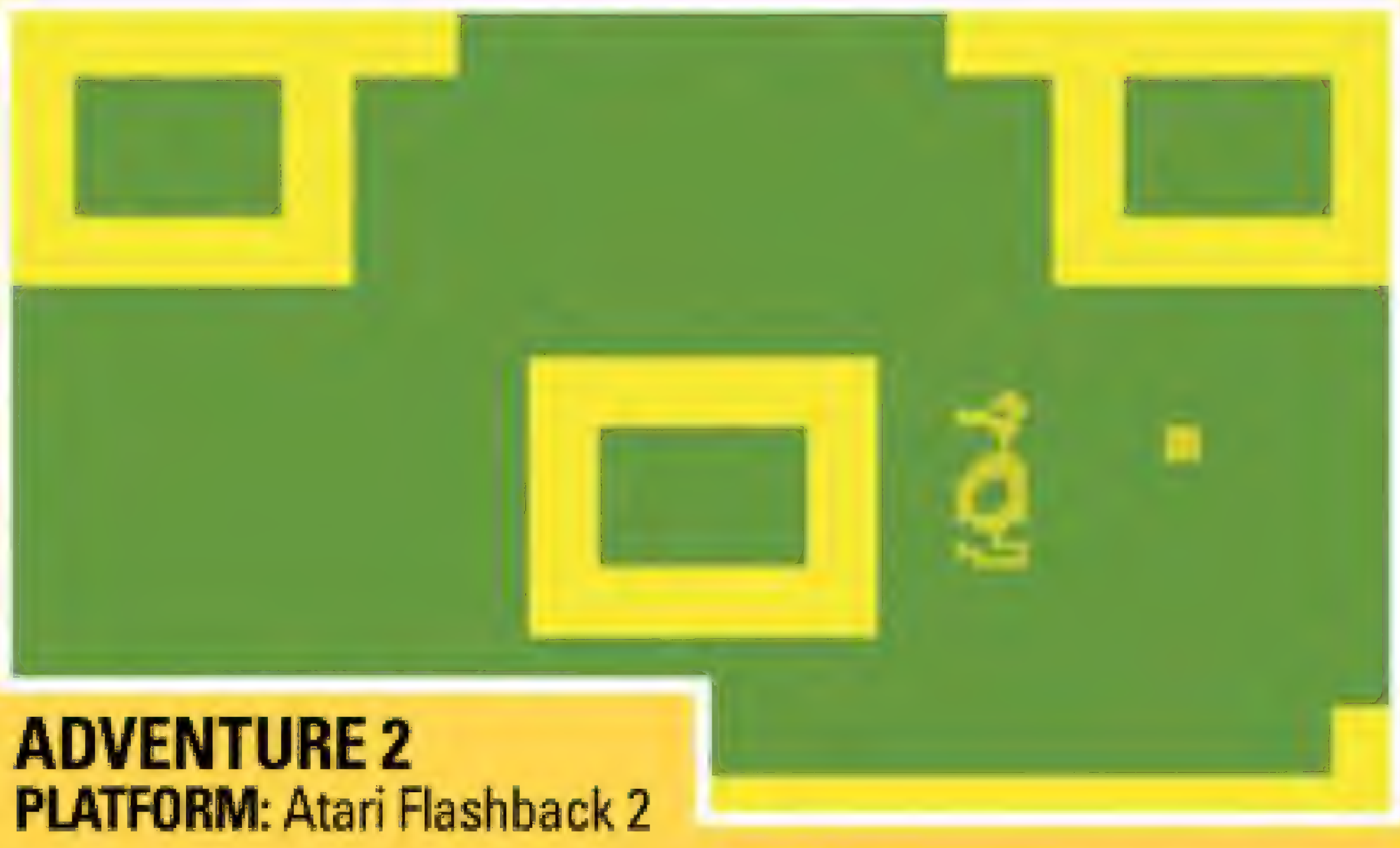
Warren had no involvement in the Adventure series after the release of the first game, but the series has lived on



SWORDQUEST SERIES

PLATFORM: Atari 2600

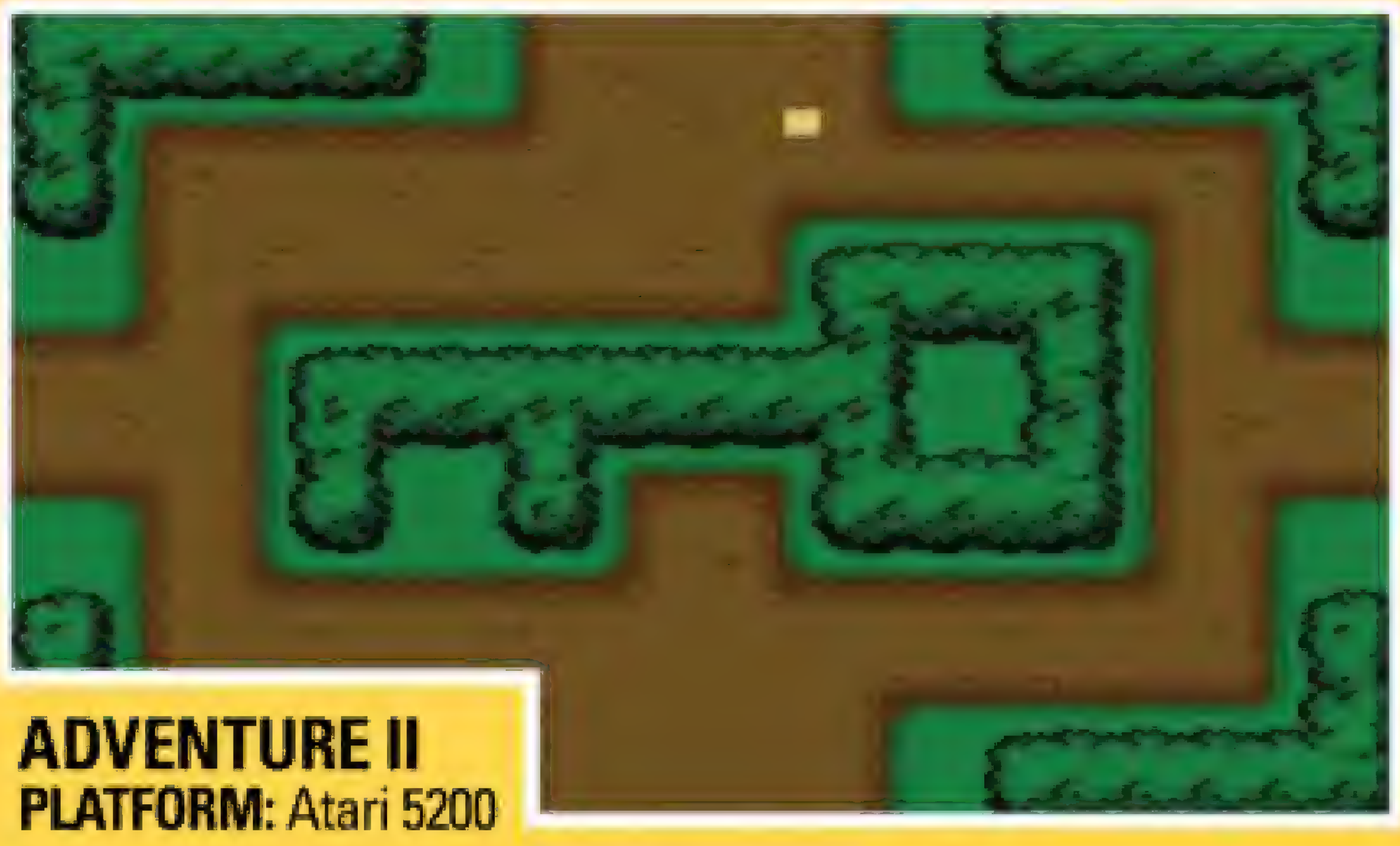
■ The first sequel to *Adventure* evolved into the *Swordquest* series, an unfinished symphony of four games tied to series of competitions. The series is notable for each released episode – *Earthworld*, *Fireworld* and *Waterworld* – coming packaged with a comic book which gave players vital hints and clues needed to finish the game.



ADVENTURE 2

PLATFORM: Atari Flashback 2

■ In 2005, Curt Vendel wrote a somewhat posthumous sequel to *Adventure* for the Atari Flashback 2 dedicated console. Based on the original code, it reuses many of the object sprites – you can see the recognisable duck dragon here – from the original game but rearranges them to create an entirely new set of rooms for fans to explore.



ADVENTURE II

PLATFORM: Atari 5200

■ In 2007, Ron Lloyd and the popular Atari community website Atari Age were permitted to release a homebrewed sequel to *Adventure* for the A5200. With enhanced graphics (though your avatar is still just a square), plenty of games modes, and coming packaged with its own manual and box, it's a fine tribute to the original.

SEGA MASTER SYSTEM/Power Base
POWER

POWER
CONTROL PAD
SEGA
1 START

Its lack of success in Japan and the US has turned Sega's 8-bit console into something of a forgotten masterpiece. This ignorance has resulted in it becoming highly collectible, with a superb library of interesting ports and excellent exclusives. We explain why you need Sega's console in your collection

SEGA Master

Sonic The Hedgehog
SEGA
MASTER SYSTEM/Power Base
CARTRIDGE INPUT
RESET
PAUSE
CARTRIDGE
POWER ON
CONTROL 1
CARD
CONTROL 2
TV SYSTEM
CONTROL 1
CONTROL 2
CARD INPUT
CONTROL PAD
1 START
2
SEGA

» **Manufacturer:** Sega » **Models:** Master System, Master System II, Master System 3, Master System Evolution » **Launched:** 1985 » **Country of origin:** Japan

System

SEGA Master System The Collector's Guide

» Sega followed up the Master System with this ugly-looking second model. We've no idea what Sega was thinking…

» The Master System II was cheaply made, so you won't find an RGB connection on it.

» These excellent retro-styled panels not only look cool, but explain how to hook up your beloved machine to a TV.

» Sonic had a pretty good showing on Sega's Master System, with a selection of genuinely great games.

Why it's collectable

After a couple of false starts entering the console market, Sega's third attempt – dubbed the Mark III – would eventually pave the way for things to come. Although the new console was pushed aside by the runaway success of the Nintendo Famicom in Japan, Sega had high hopes for it elsewhere. With revamped looks and rebranded as the 'Master System', it was unleashed on North American shores; however, Nintendo was showing no sign of slowing down there either. This left the Master System one relatively untouched territory in which to triumph: Europe.

As the hefty price tag of the Nintendo NES – coupled with lacklustre marketing – left a huge gap in the British gaming market, Sega began preparing an unforgettable ambush. Its pre-Christmas ad campaign in 1987 had gamers lusting after the promised near-perfect arcade gameplay, something that was never guaranteed by home computer coin-op conversions. For just £99 at launch, the attraction of instant-loading accurate arcade ports of *Hang-On*, *After Burner* and *Space Harrier* were hard to resist – and so a Master System was soon installed in countless households.

During this time the European Master System software library expanded to nearly 300 licensed titles, including some fantastic arcade conversions, the beginnings of franchises such as *Alex Kidd*, and even 8-bit interpretations of Mega Drive titles such as *Sonic The Hedgehog* and *Streets Of Rage*. In addition, the glowing PAL selection featured dozens of exclusive releases such as *The Lucky Dime Caper*, *Asterix*, *Ninja Gaiden*, *Master Of Darkness* and *Power Strike II*.

In comparison, North American owners had little to shout about, as publishers began focusing their efforts on the European market. This unusual turn of events left just over 100 games released within the US. However, it only got stranger from there. The Master System's native Japan was neglected further, with an even smaller catalogue of titles. Despite the fact that these regional differences created a handful of desirable import-only titles, Europeans today find themselves fending off a flurry of competition from abroad for their own exclusive 8-bit classics.

Looking back over the course of the Master System's life, the desirability of the console today wasn't determined solely by the output of game developers all those years ago. Throughout the course of its continental crusade, the system not only saw various game-enhancing accessories, such as state-of-the-art 3-D Glasses, but a revised model of the hardware in 1990. The Master System II dropped the hard edges of the previous decade's design and included the definitive *Alex Kidd in Miracle World* as a built-in game – a clincher for any late adopters of 8-bit videogame systems. Collectors today will find themselves hunting the rarer variation of this revision, one which left Sega's Eighties mascot behind and replaced his built-in game with *Sonic The Hedgehog*.

Many years later, after an impressive run and slow retirement, the Master System's European lifespan would come to an end with one final game, released in

» Alex Kidd used to be Sega's mascot before Sonic arrived, so he stars in a lot of games on Sega's 8-bit console.

» The Sega Cards were rereleased on normal cartridges, making the originals highly collectable now.

» A selection of magazines from the time that used to cover the Master System. Interestingly, *C&VG* called it the 'Sega'.

» Sega Cards held less information than a normal Master System cartridge.

Did you know?

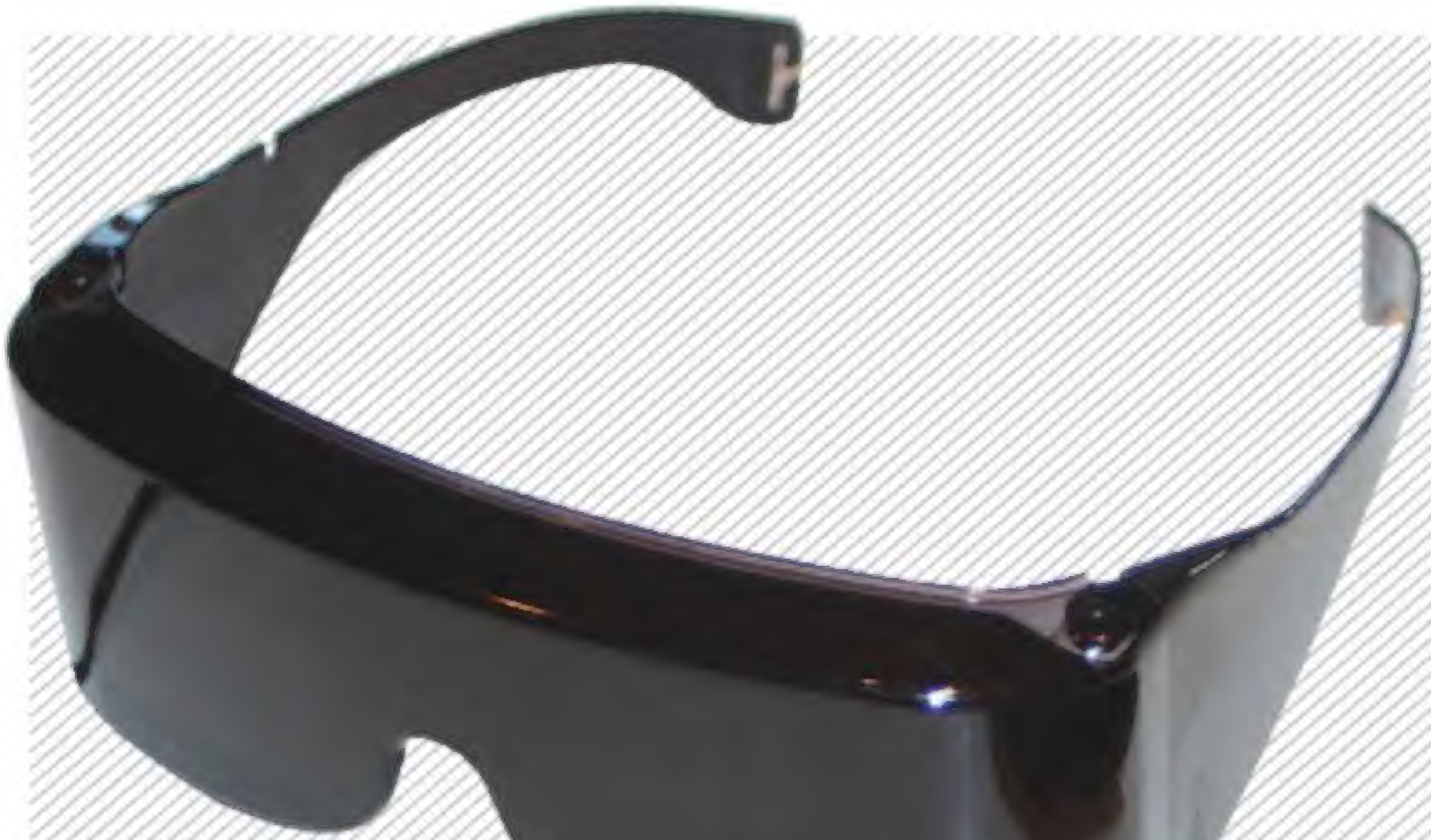
- In 1984 an add-on was released for Sega's SG-1000 known as the Card Catcher. This enhancement featured a small slot, the size of several credit cards stacked together, which accepted the newly introduced My Card format. These pocket-sized releases were intended to reduce the cost of manufacturing games, compared to cartridges, while offering up to 32KB of ROM. Sega decided to build this technology into the Master System for launch, but unfortunately by then it was showing its age: as cartridges were generously providing up to 512KB of ROM, only the smallest and most basic games remained in this once promising format.

1996. This title's existence in major European markets, however, remained unknown until much later on. Although it was an official release, *Les Schtroumpfs Autour du Monde* (aka *The Smurfs Travel The World*) wasn't discovered until early 2000, when a Finnish tourist visiting the Czech Republic stumbled across a handful of copies. Initially unaware of the small fortune he had uncovered, his dead-end research into the title and subsequent discussions online made it very clear he needed to return to this gold mine to amass his fortune. Needless to say, this extreme rarity soon became the holy grail for Master System collectors, with just a few copies circulating worldwide – many of which originated from this initial haul. Surprisingly enough, this final European title would not be the last the world saw of Sega's 8-bit system.

Several thousand miles away in Brazil, a company by the name of Tec Toy (now Tectoy) began distributing the Master System in 1989 – and has continued to do so ever since. Even today, the prehistoric hardware continues to sell in surprisingly large quantities through the many revised models Tec Toy has manufactured, most of which arrive with hundreds of built-in games. The true desirability of these Brazilian products, however, resides with the Master System software which was distributed in the Southern Hemisphere around two decades ago. Tec Toy not only released a multitude of Portuguese translated games, but also over 20 exclusive titles which have since become highly collectable worldwide. This selection featured the only 8-bit Sega versions of *Street Fighter II* and *Fire & Ice*; conversions of Game Gear titles such as *Legend Of Illusion*, *Baku Baku* and *Dynamite Headdy*; and also several unique titles including *Férias Frustradas do Picapau* and *Sítio do Picapau Amarelo*.

Small blue creatures and South American imports aside, the most unusual and troublesome collectable available for Master System fans dwells in the last place you'd think to look: the US release of *Sonic The Hedgehog*. While appearing to be nothing more than the European version imported for general sale in North America, this US version of the timeless classic differentiates itself with an additional UPC barcode sticker on the back of the game's case. Although most will cast aside this extreme case as being one for the die-hards, those aiming for the definitive full set of US releases face a difficult task ahead – contacting sellers and requesting photographs of the reverse side of their purchasable items. A quest that could yield a significant bargain, or total loss of sanity.

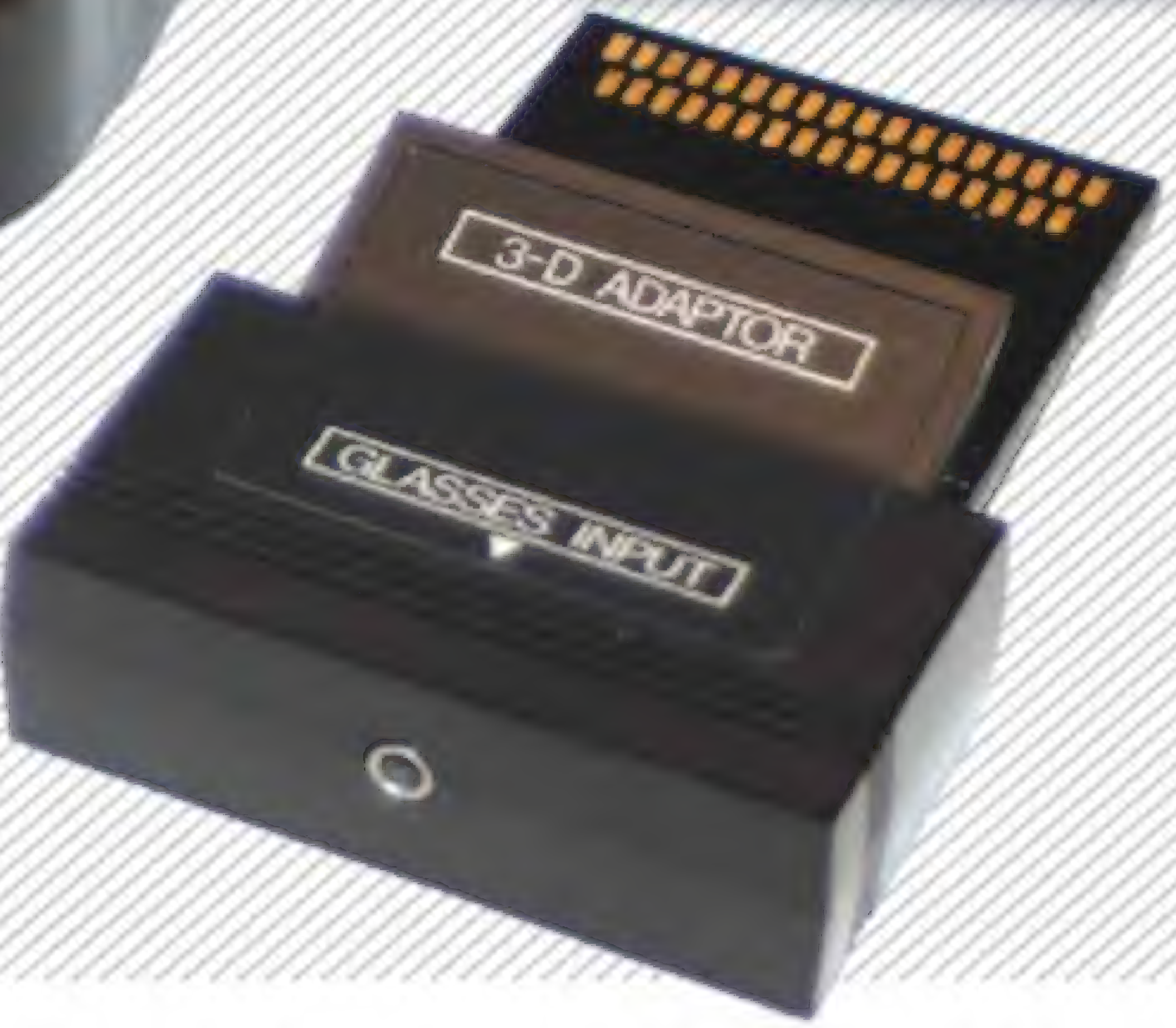
All things considered, the Master System holds a lot of history and oddities to lure in late adopters and second-time-around fanatics. Given that it's one of the few consoles which was focused on the European market, PAL collectors for once can bask in the glory of knowing that the better titles the system has to offer aren't several thousand miles away, nor locked behind import restrictions. But as if that weren't enough already, the final beauty of Sega's 8-bit system is that a large proportion of the console's library, including some of the definitive titles, on a good day, can still be had for mere pennies – at least for now...



» [SMS] *Space Harrier 3-D* was a Master System exclusive.

» [SMS] *Out Run 3D* is one of eight compatible games.

» [SMS] The arcade version of *Line Of Fire* uses a first-person viewpoint.
SCORE
0
LIFE
×050
×2



SegaScope 3-D Glasses

The three-dimensional gaming we've all grown accustomed to on modern gaming platforms is actually nothing new. By the late 1980s, Sega had already been to the next dimension and back, with the Master System's very own SegaScope 3-D Glasses.

Using a technique known as an active shutter 3D system, Sega's accessory would display the on-screen visuals intended for the left eye while obscuring the right eye's view, then quickly reverse the process by presenting an image for the right-eye while blocking the left eye. This cycle would then repeat over and over again at a speed much faster than the human eye could register, tricking the brain into interpreting the two images as a stereoscopic 3D picture – leaping out of a once flat television.

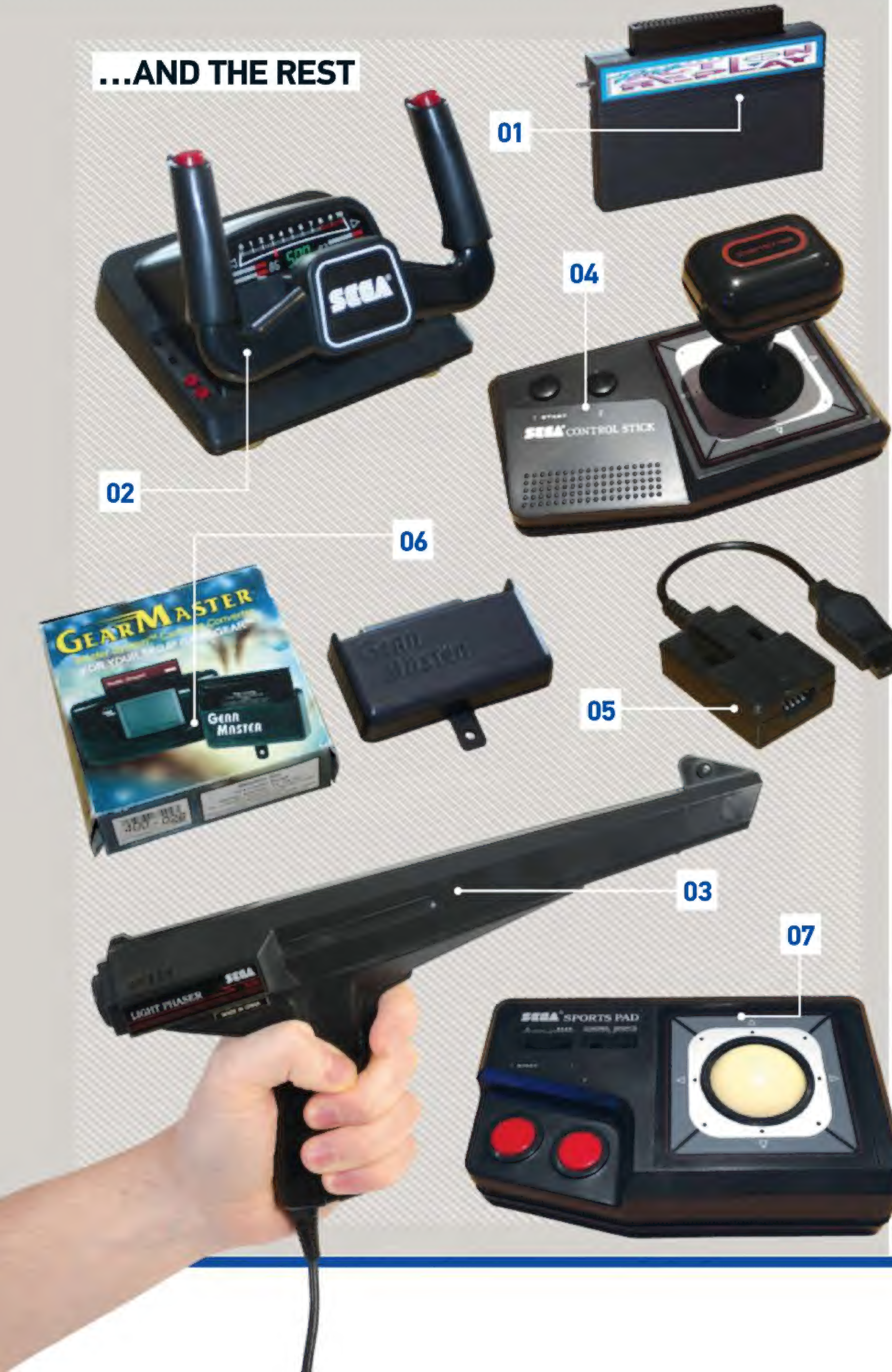
Although a simple process, to achieve this effect the 3-D Glasses required a constant connection to the Master System. To sync the on-screen action with the active shutter visuals, the wire leaving the headset would need to be plugged into the card slot found on the original Master System console – something which would in turn leave the system's cartridge slot open for software to run from. This solution was anything but future-proof: by the time the revised Master System II console had arrived, the once significant card slot had been removed from that sleek update, as had Sega's focus on the technology.

While the Glasses were an impressive piece of kit, sales were soon dwindling. The line-up of compatible software would only ever reach a grand total of seven specially developed titles, with one additional game offering a 'hidden' 3D mode. Among this small count, several arcade classics such as *Space Harrier*, *Out Run* and *Zaxxon* were impressively adapted to make use of the added depth and new functionality.

This commercial failure, however, was not exclusive to Sega. The Famicom 3D System, Nintendo's equivalent to the Master System's 3-D Glasses, saw an equal number of compatible games made available shortly before being swept under the carpet – very much like the Virtual Boy would be in years to come. Even the Vectrex had its own 3D Imager accessory – which predated Sega's technology by a good few years – but sadly it fell victim to the American videogame crash of 1983.

Finding a pair of these 3-D Glasses in working order today is a difficult feat, something that can be attributed to ever-growing demand. Some of the most common issues found with adopting these glasses second-hand are the prevalent cracked hinges and snapped temples, a result of Sega's flawed design. Only those with a head the size of a small child's will feel safe wearing this vintage headwear without fear of causing damage. There is, however, a solution at hand to combat these head-size issues, as the technology used decades ago is still around today. Believe it or not, most brand new active shutter 3D glasses available (with an accompanying wire ending in a 3.5mm jack plug) should work once connected to the adaptor in the Master System's card slot.

...AND THE REST



01. Pro Action Replay

■ Following the successful release of cheat cartridges on the Commodore 64, Datel moved its focus onto home consoles. One of its first efforts, a Master System version of the Pro Action Replay, was only released in small quantities in Europe. Those hoping for quick access to infinite lives should look towards the easier-to-find German version, while die-hard collectors may want to scout out the more desirable UK version instead.

02. Handle Controller

■ Quite possibly the most unusual and collectable accessory for the Master System, this replica steering wheel and flight stick hybrid was a short-lived 1989 release. It's incredibly difficult to find a working one today: not only was it poorly made, but its accompanying (and vital for use) detachable wire is easy to misplace.

03. Sega Light Phaser

■ While the Nintendo NES may have had the bright toy-coloured Zapper Light Gun, Sega produced a more realistic-looking weapon for its Master System. The Sega Light Phaser was compatible with 13 titles and was, strangely enough, a Western exclusive accessory – one often bundled with the system and harder to find boxed alone.

04. Sega Control Stick

■ In the decade leading up to the release of the Master System, gamers worldwide had grown accustomed to the standard layout of coin-op controls. So for one of the leading arcade machine makers of the day to create a reversed left-handed arcade stick for the home console was nothing short of baffling.

05. Rapid Fire Unit

■ In an attempt to add more firepower to our gaming accessories, Sega expanded upon its standard control pad with an add-on which introduced auto-fire functionality. This small block sat between the console and joypad, offering two independent switches to control which buttons were turbocharged.

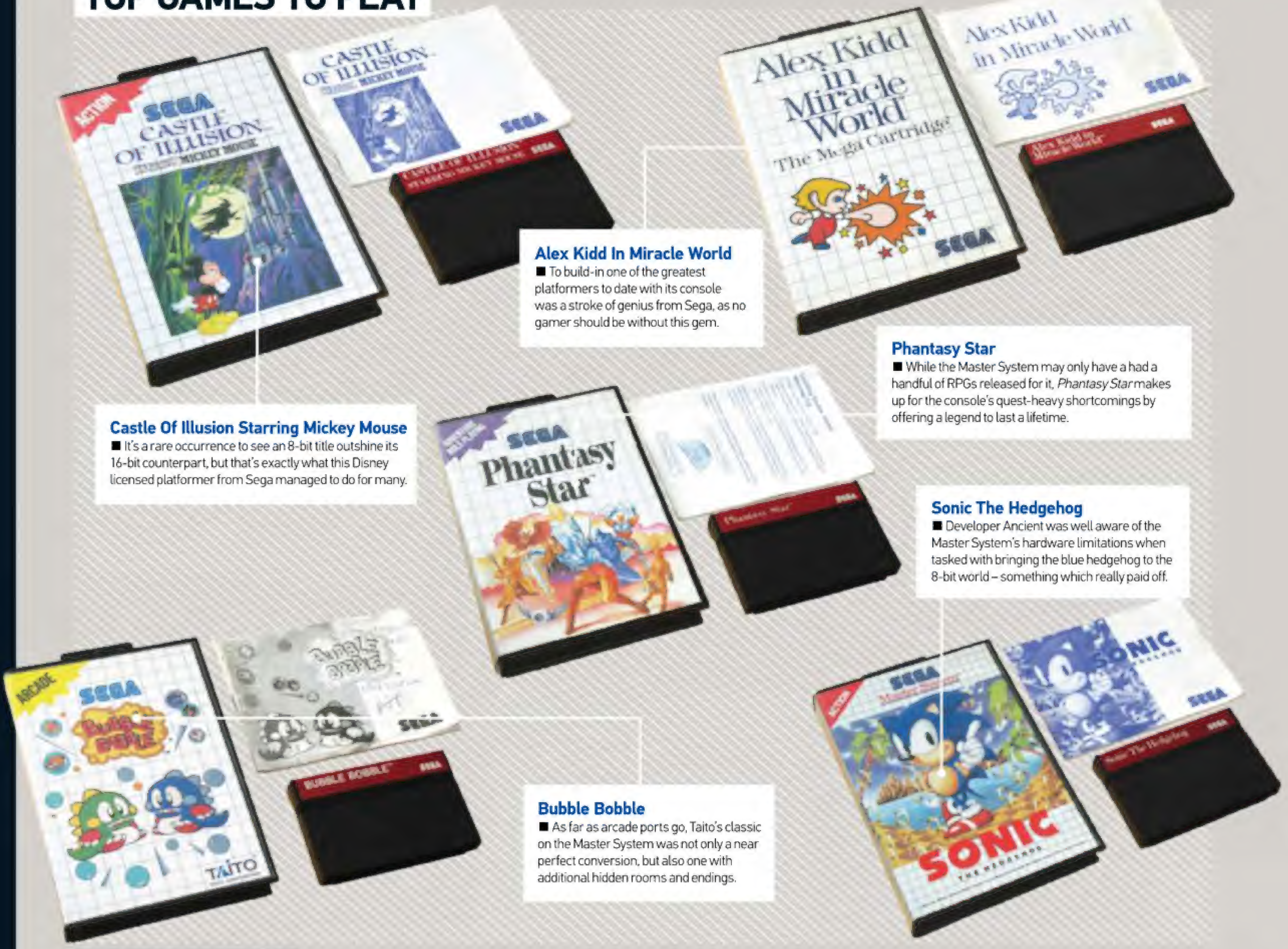
06. Master Gear Converter

■ With the Master System and Game Gear sharing near identical hardware, the small cartridge slot on the handheld was the only thing preventing console software from being enjoyed on the go. The Master Gear Converter (aka Gear Master) pass-though device remedied this by providing a larger slot for Master System titles to fit into the Game Gear.

07. Sega Sports Pad

■ One of the few accessories to skip out on a European release was the trackball-equipped Sega Sports Pad. Although promising a precise 360° movement range, this three-game-compatible peripheral failed to deliver such accuracy.

TOP GAMES TO PLAY



Alex Kidd In Miracle World

■ To build-in one of the greatest platformers to date with its console was a stroke of genius from Sega, as no gamer should be without this gem.

Phantasy Star

■ While the Master System may only have a had a handful of RPGs released for it, *Phantasy Star* makes up for the console's quest-heavy shortcomings by offering a legend to last a lifetime.

Castle Of Illusion Starring Mickey Mouse

■ It's a rare occurrence to see an 8-bit title outshine its 16-bit counterpart, but that's exactly what this Disney licensed platformer from Sega managed to do for many.

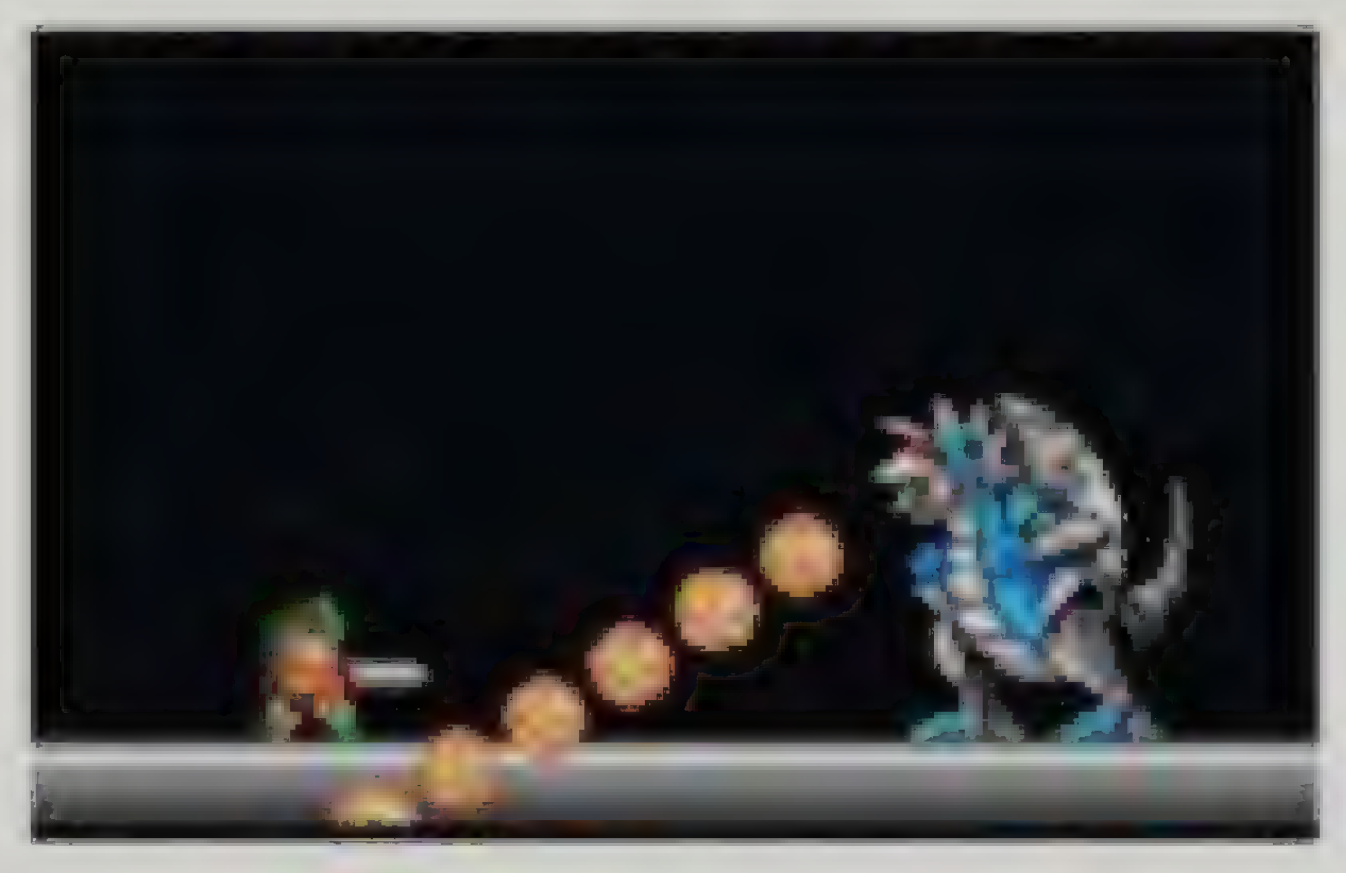
Sonic The Hedgehog

■ Developer Ancient was well aware of the Master System's hardware limitations when tasked with bringing the blue hedgehog to the 8-bit world – something which really paid off.

Bubble Bobble

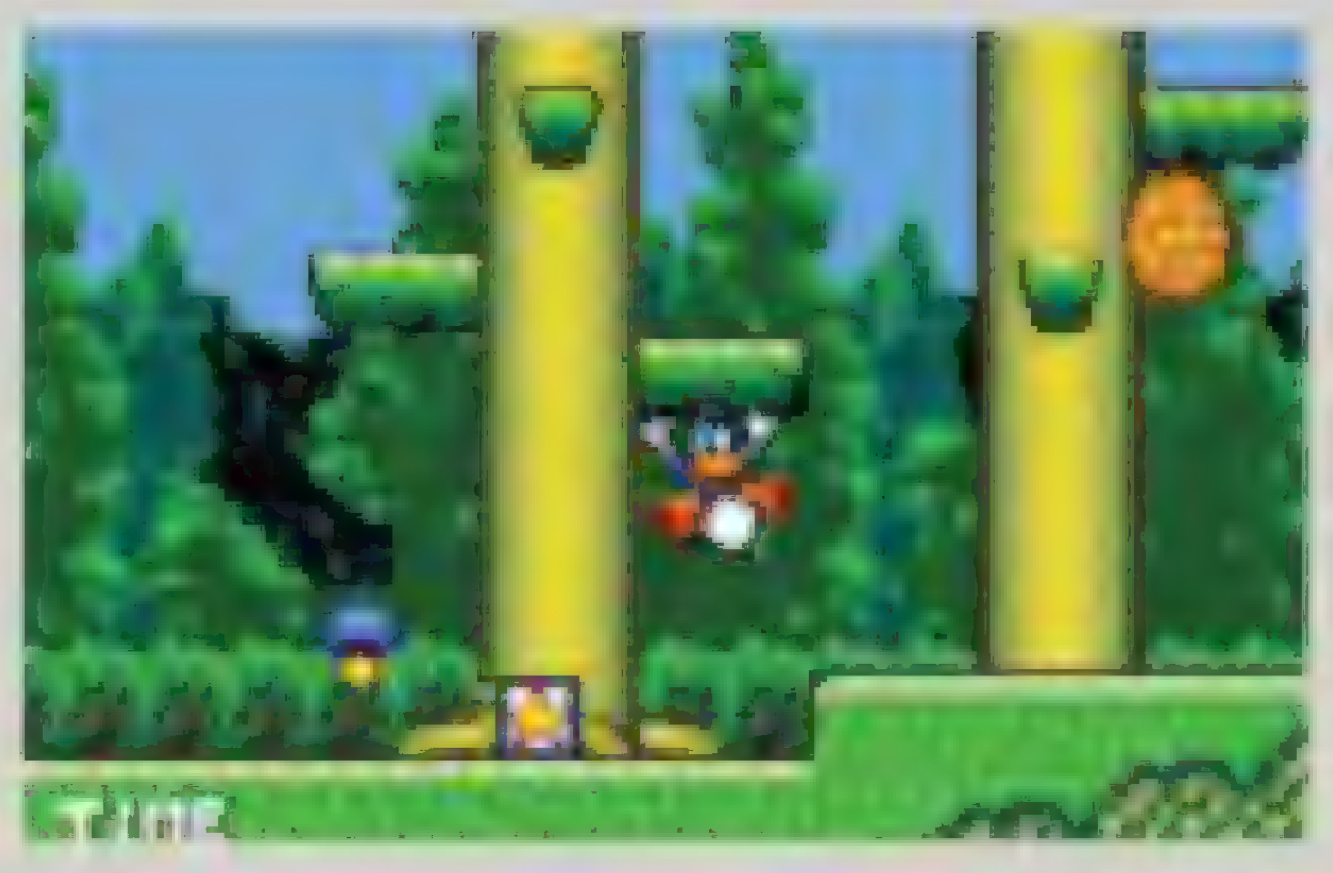
■ As far as arcade ports go, Taito's classic on the Master System was not only a near perfect conversion, but also one with additional hidden rooms and endings.

PLAY THESE NEXT



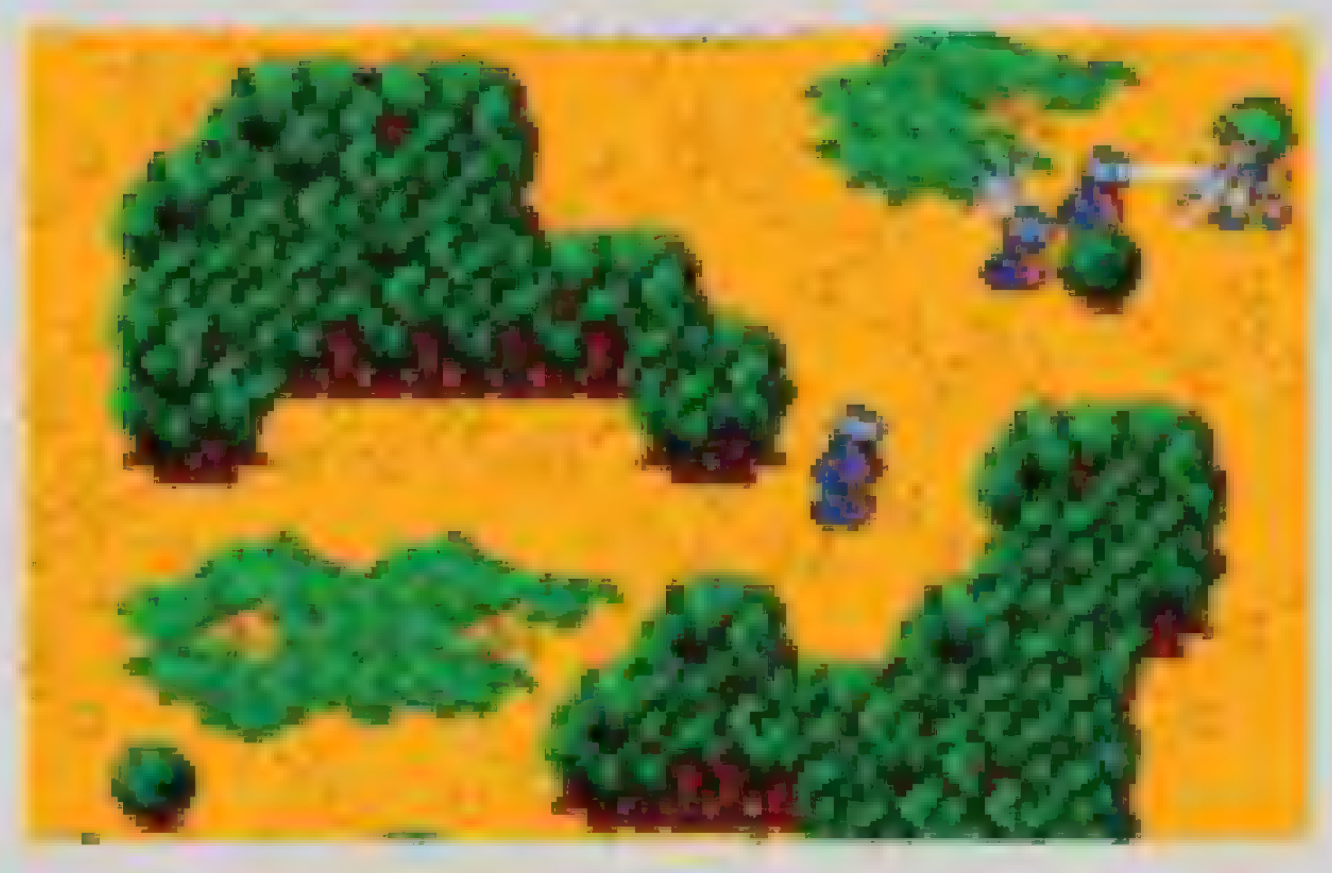
Wonder Boy III: The Dragon's Trap

■ The fourth game in the series (strangely named *III*) had a lot to live up to – something it did in style with gorgeous visuals and fluid gameplay. While the use of the term is generally frowned upon, there is no better description for it than being an early example of the 'Metroidvania' genre.



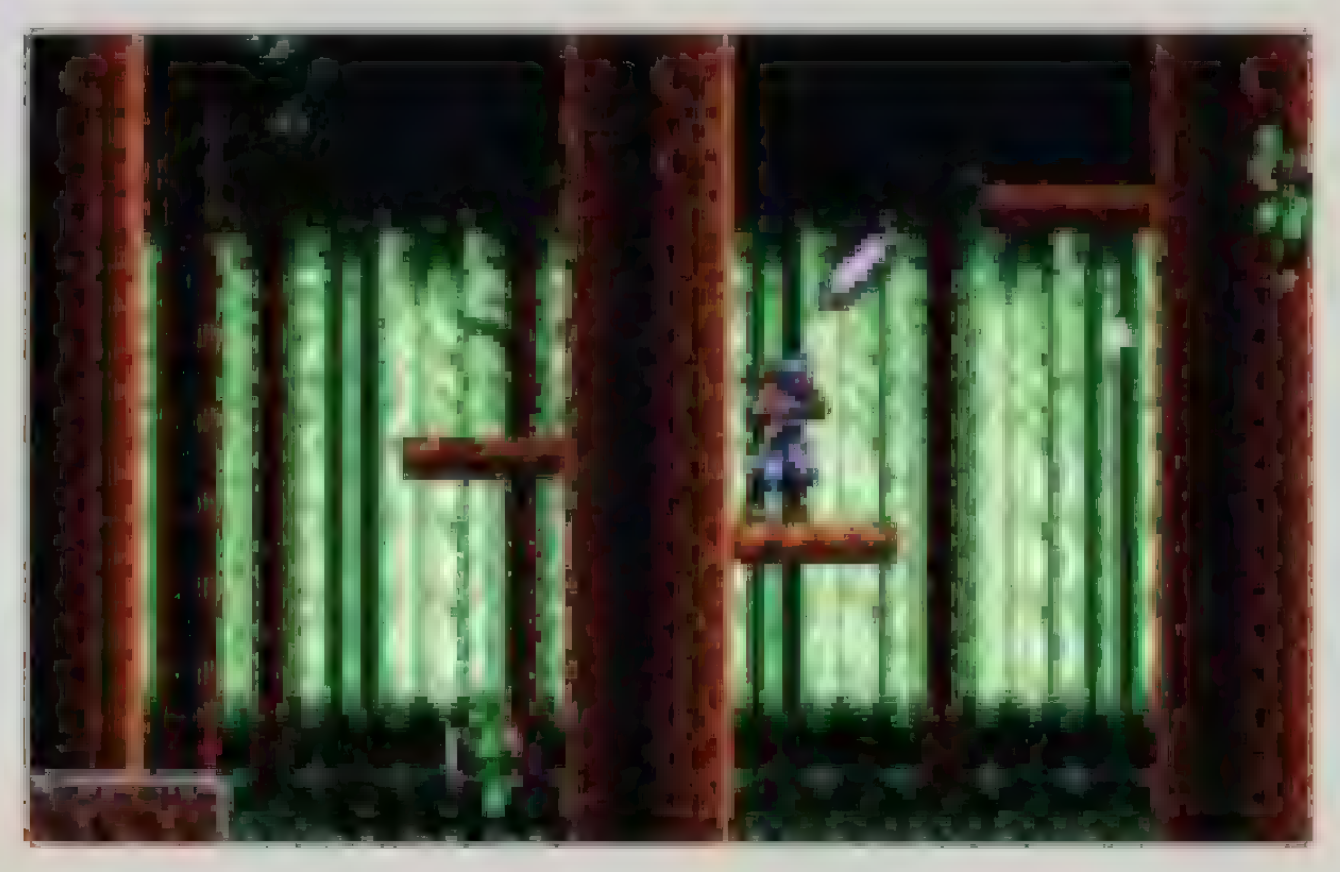
The Lucky Dime Caper Starring Donald Duck

■ While Mickey Mouse's *Castle Of Illusion* stole the limelight, Donald Duck's adventure is just as worthy of the 8-bit Disney crown. His globetrotting quest to reclaim his kidnapped nephews and Uncle Scrooge's Number One Dime further proved what the Master System was capable of.



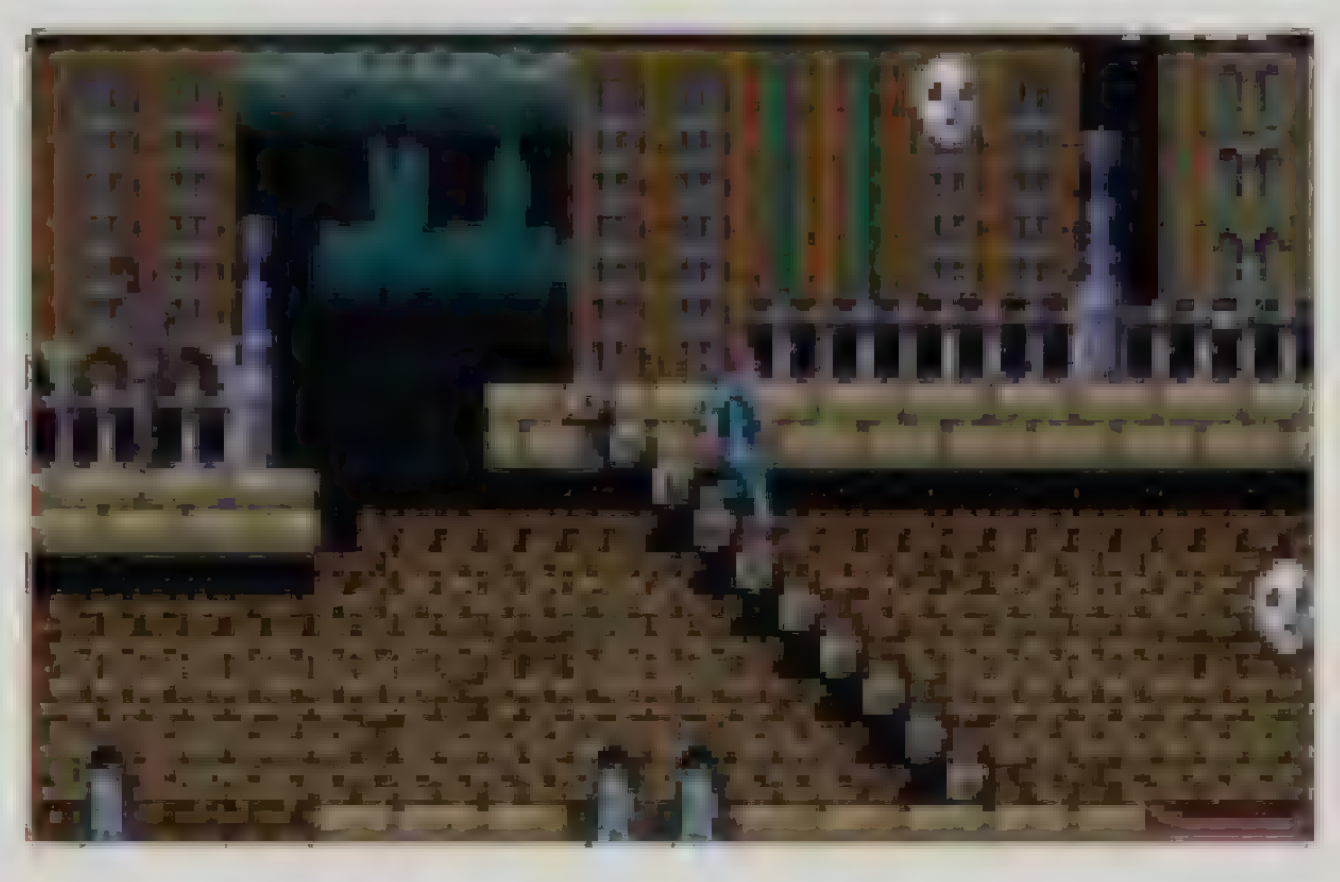
Golvellius: Valley Of Doom

■ Created for the MSX range of computers in 1987, *Golvellius* was Compile's fantastic answer to Nintendo's *Zelda II*. After licensing the side-scrolling adventure franchise the following year, Sega went on to release a remake for its 8-bit system – one that built upon the original with enhanced graphics and new in-game maps.



Ninja Gaiden

■ Much to North American gamers' surprise and delight, Tecmo's timeless *Ninja Gaiden* series was not exclusive to the Nintendo NES, though only for a brief moment. Sega's 8-bit range of systems saw two equally difficult challenges which both featured superior visuals to their rival NES counterparts.



Master Of Darkness

■ Within moments of controlling Dr Social in his investigation of a series of London murders, a certain iconic castle-based-quest may come to mind. Released six years after Konami's *Castlevania*, *Master Of Darkness*, if anything, is Sega's tribute to the 2D Dracula-hunting action-adventure, and it was far from shy in its admiration.

TOP GAMES TO IMPORT

Baku Baku

■ To think that the 32-bit Sega Saturn release *Baku Baku* was remade for Sega's 8-bit range of consoles is somewhat puzzling. Nevertheless it is a must-have import from South America.

King's Quest – Quest For The Crown

■ The North American library of Master System software may be lacking, but it did receive a port of Sierra's iconic entry into the adventure game genre with *King's Quest*.

Legend Of Illusion – Starring Mickey Mouse

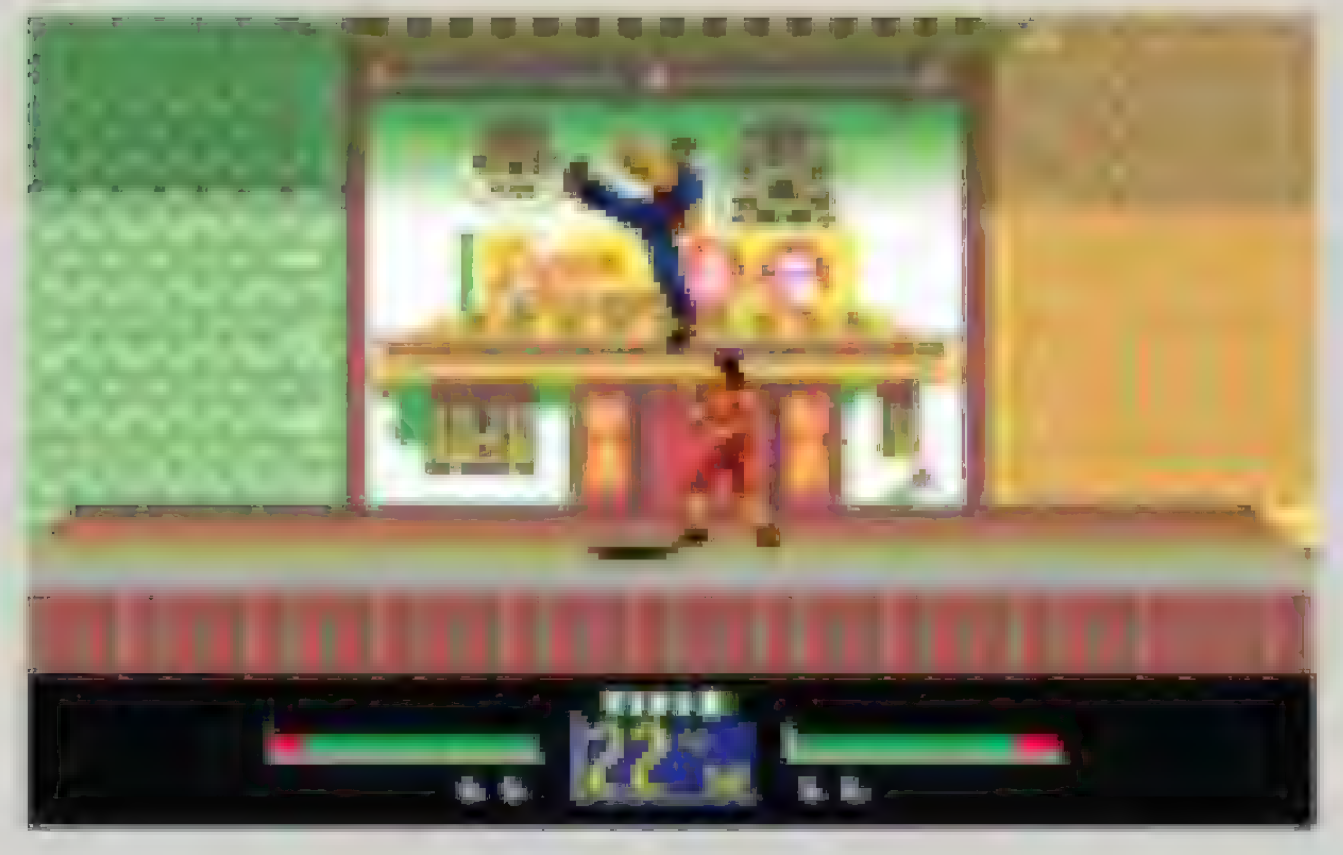
■ The finale of Mickey's trilogy of early Sega outings may have skipped out on an European release (if you don't include the Sega Game Gear port), leaving the Brazilian import a hot property.

ALF

■ Of all the fictional characters worthy of receiving the video game treatment, Sega somehow landed with *ALF* – a laughable, although enjoyable, attempt to immortalise the Alien Life Form of TV fame.

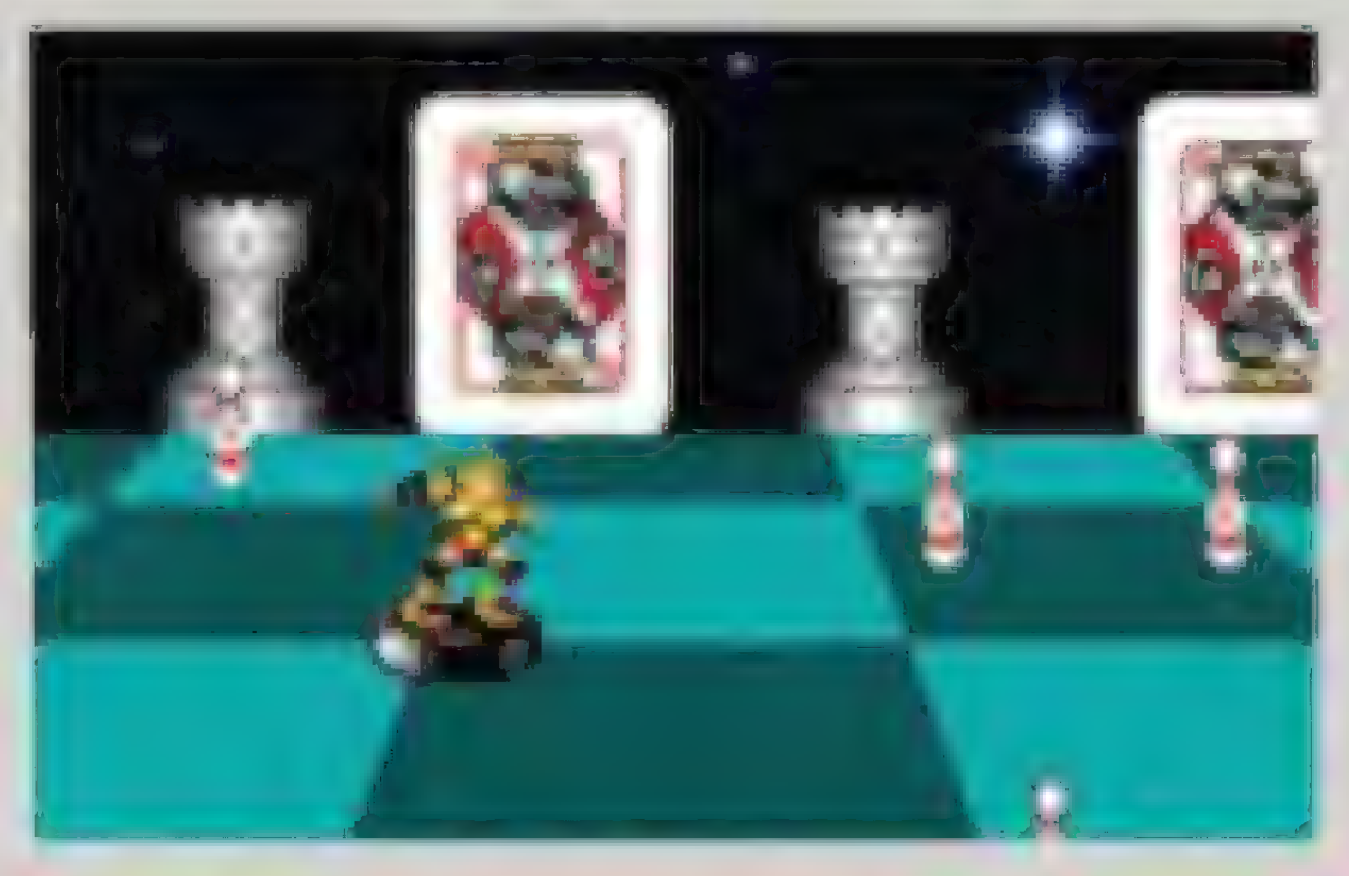
Dynamite Headdy

■ Originally ported to the Sega Game Gear, the Southern Hemisphere's finest distributor, Tec Toy, secured the rights to distribute a port of Treasure's bonkers platformer on the Master System.



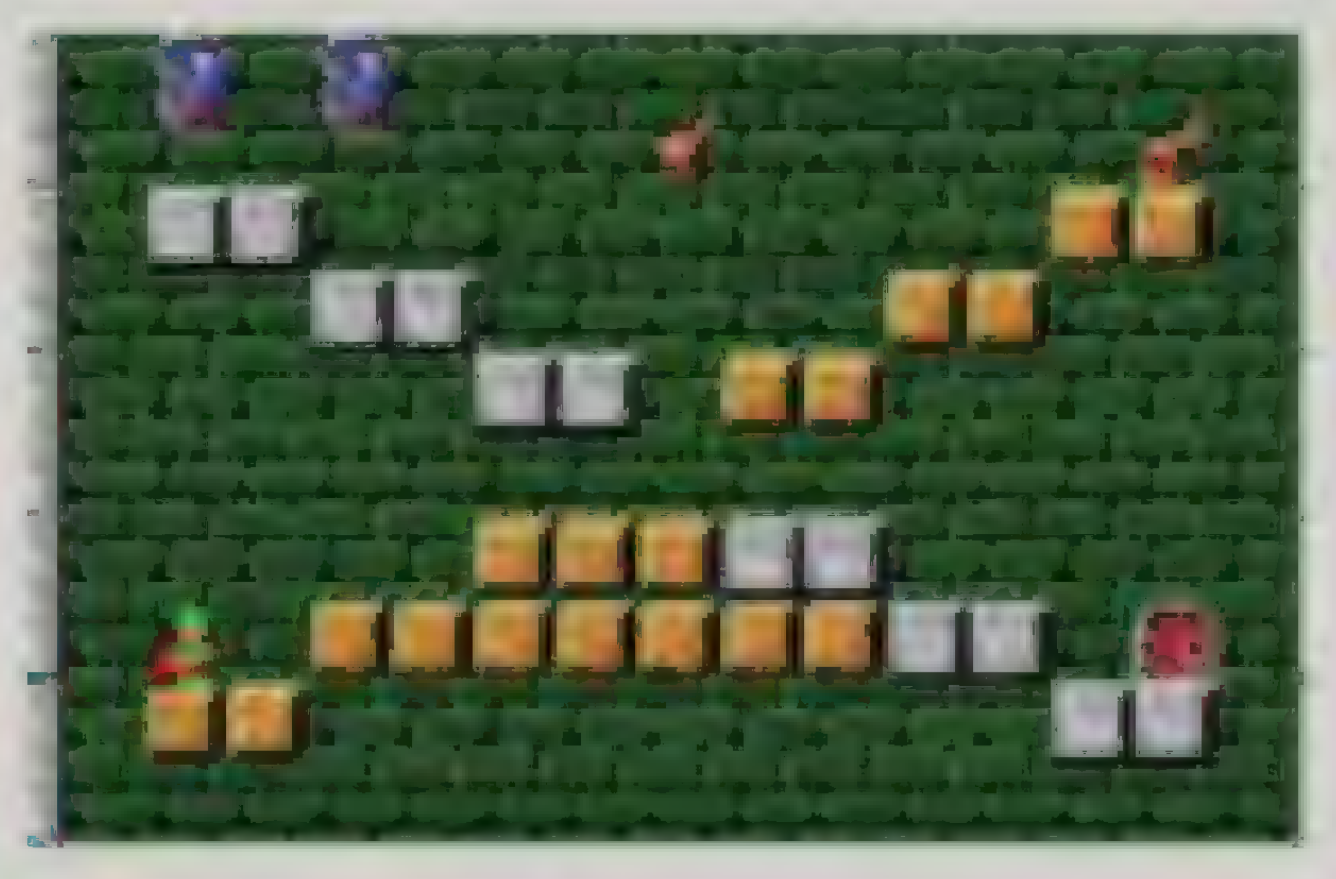
Virtua Fighter Animation

■ Given that *Virtua Fighter* is known for its amazing visuals and ahead-of-its time gameplay, taking it back to Sega's 8-bit console was ambitious. While it may have lacked the 3D element and controls of its 32-bit equivalent, the newly introduced story element further proved there was life left in the then decade-old system.



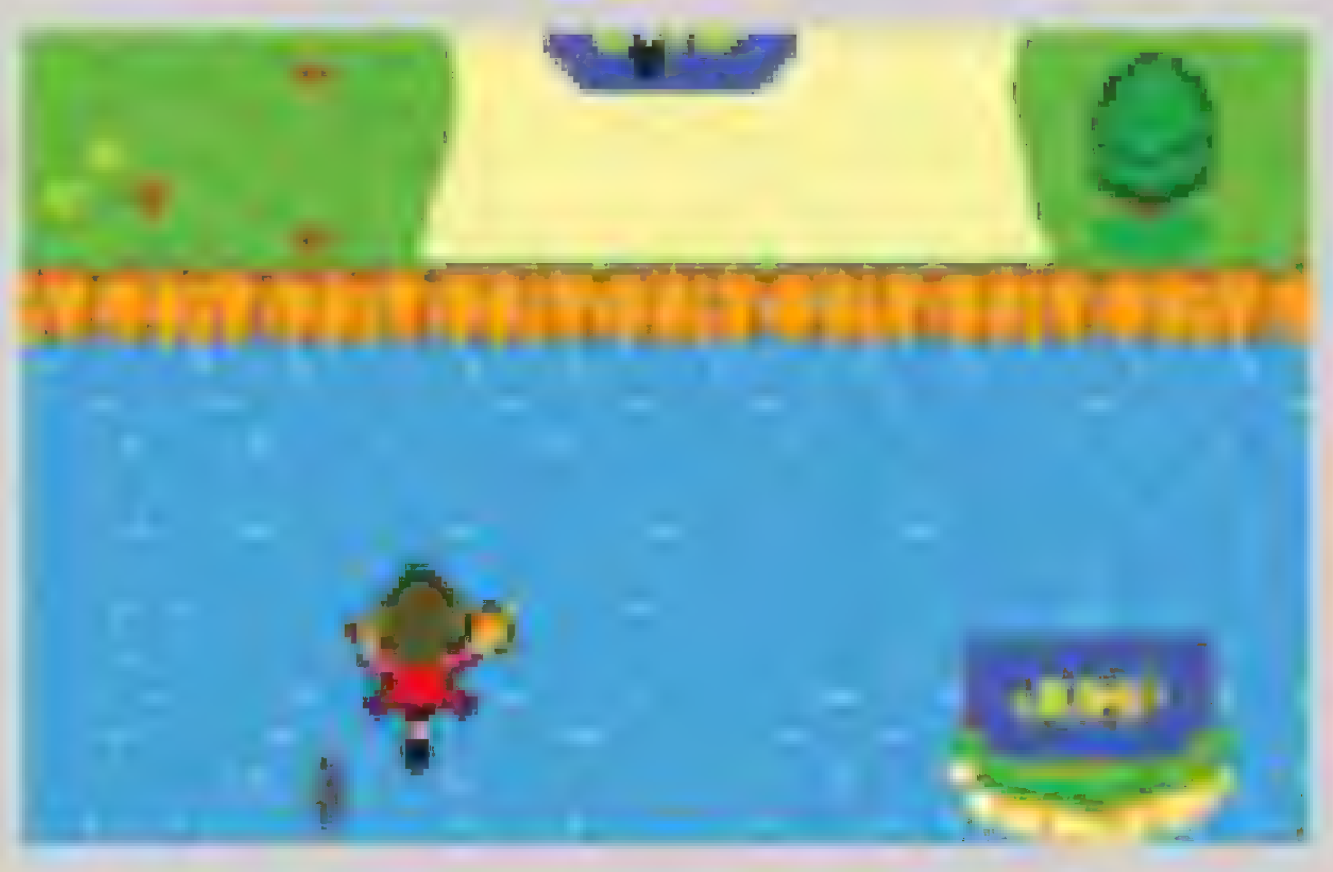
Battletoads In Battlemaniacs

■ After having its imminent 1994 European release canned, the Master System port of the *Battletoads* sequel flew south – in an unfinished state, with several stages lacking music and others riddled with bugs. The already infuriating turbo tunnel level contained more obstacles than usual, many of them hidden from view.



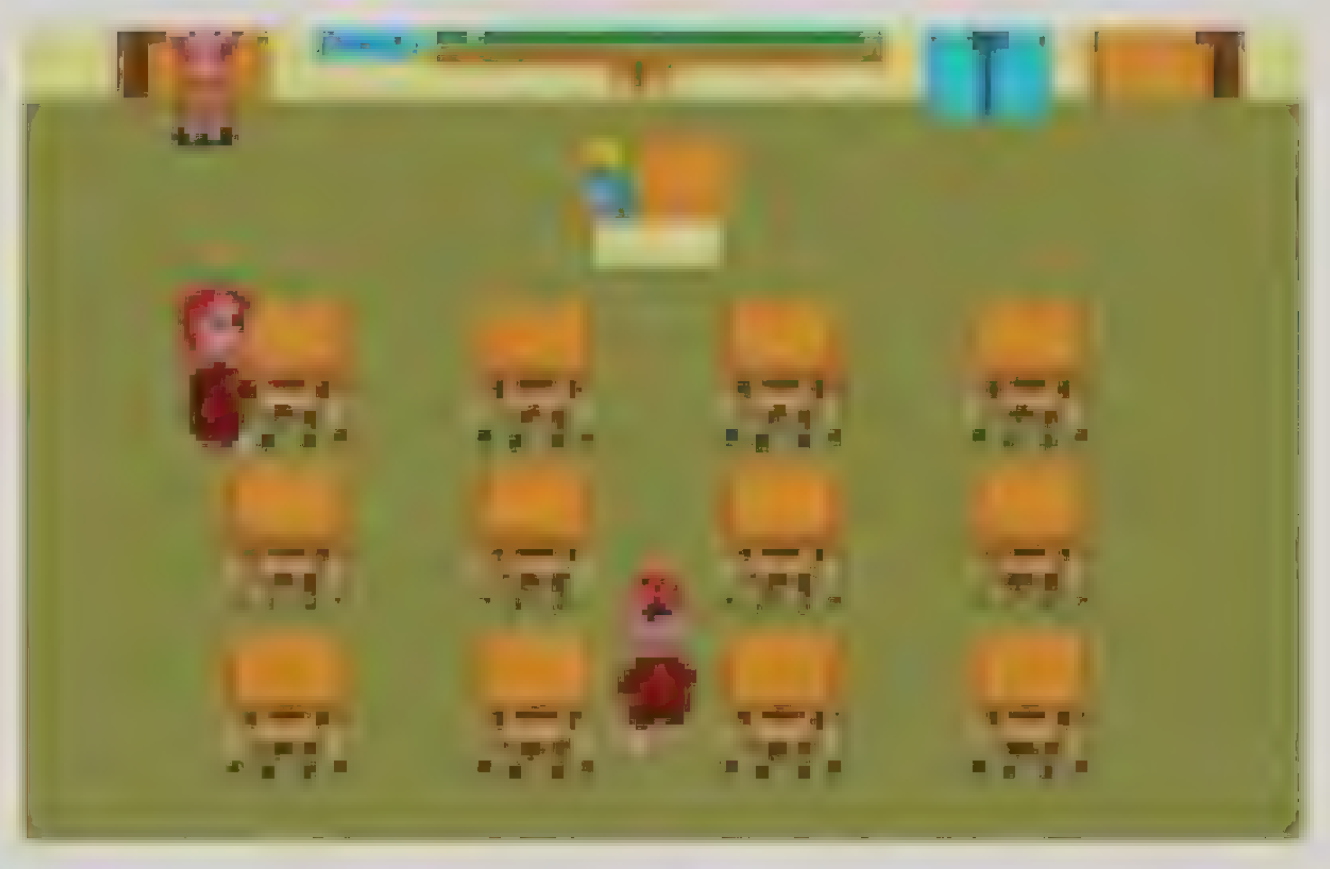
Solomon's Key

■ Following its arrival in the arcades, Tecmo's coin-op hit made its way onto just about every platform going. The Sega Master System version of the fantastic puzzler, however, ended up as an import exclusive for some unknown reason – leaving gamers settling for the European Nintendo NES port in its absence.



BMX Trial – Alex Kidd

■ One of Japan's few exclusive releases was another title in the once prolific *Alex Kidd* series. Casting aside his platforming antics, *BMX Trial* was a top-down stunt playground mixed with elements of *Enduro Racer*. What made it more interesting, though, was that it required the *Pong*-esque Paddle Controller – another Asian rarity.



High School! Kimengumi

■ Based on the manga series of the same name, this unusual school-'em-up was quite different to the ZX Spectrum's *Skool Daze* and *Back To Skool*. Instead of stealing report cards from the headteacher's office, the player had to capture the five misfit junior high school boys who made up the troublesome 'Kimengumi' club.

RAREST PAL GAMES

Les Schtroumpfs Autour du Monde

■ Being the very last title to grace the Master System, this Central European release from 1996 is every bit as rare as the elusive blue Smurfs it stars.

Buggy Run

■ *RC Pro-Am* may be remembered fondly as the definitive isometric racer; however, Sega's 8-bit console had its very own diagonal driver known as *Buggy Run*.

Masters Of Combat

■ Although many had failed to bring the fighting genre to the Master System, SIMS' ambitious, albeit late, effort in 1993 proved how far the then already-dated console could be pushed.

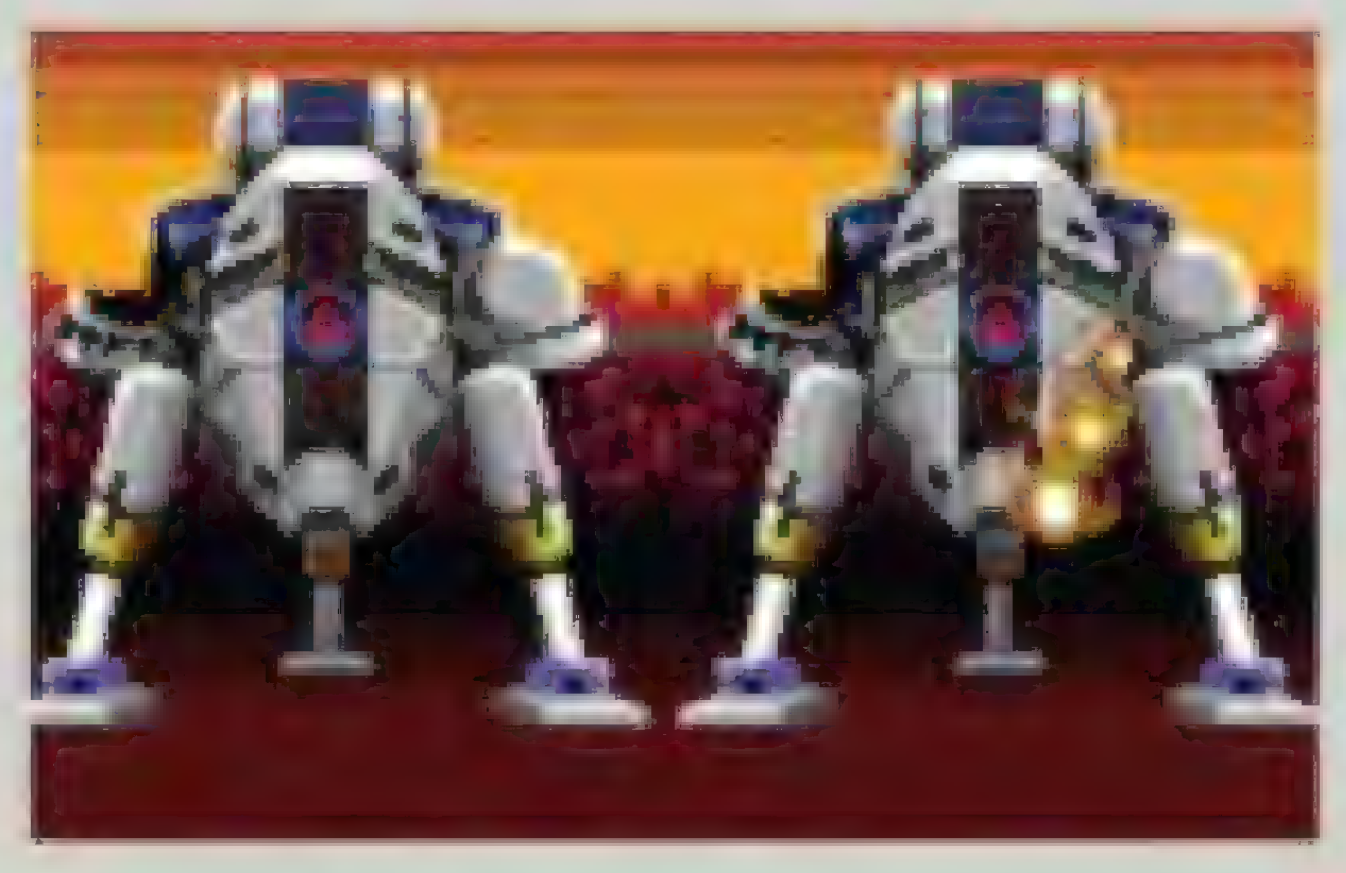
Home Alone

■ Macaulay Culkin's exemplary holiday blockbuster was done little justice in the videogame department, an offence that wasn't exclusive to its shambolic Master System release.

Power Strike II

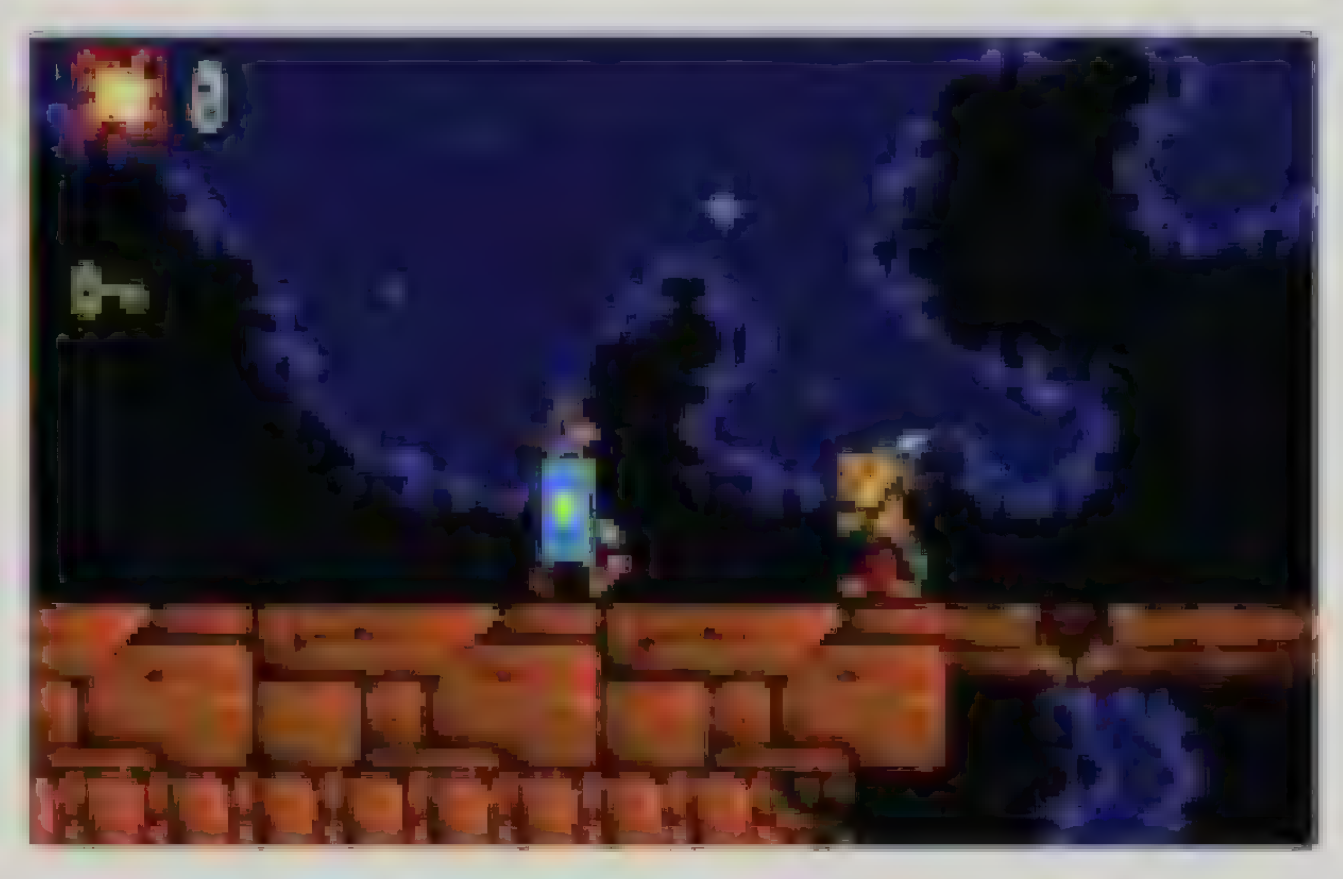
■ Not to be confused with the Game Gear title of the same name, *Power Strike II* is one of the more expensive European Master System releases, but worth every penny it commands.

GET THESE NEXT



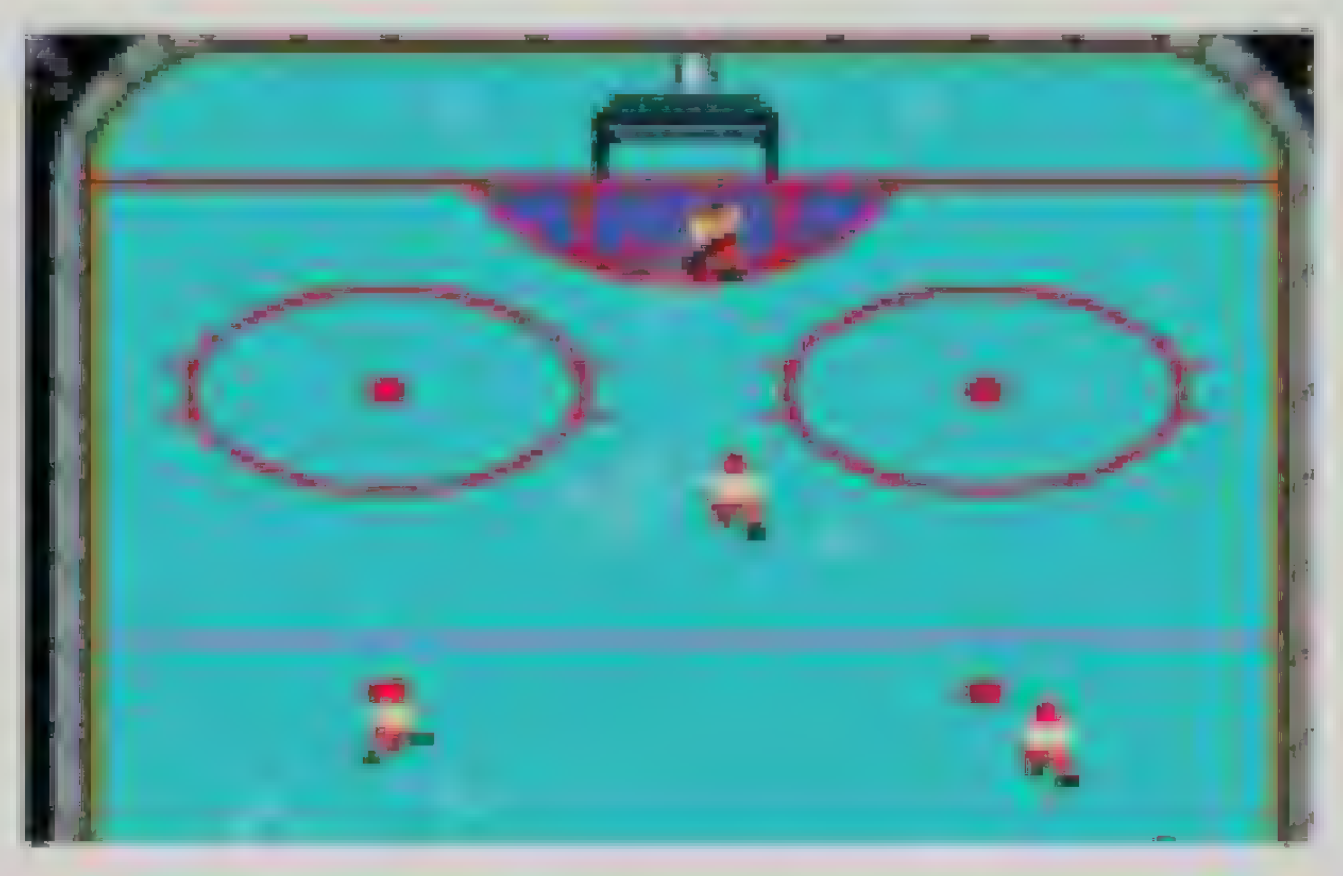
Assault City: Light Phaser Version

■ Despite its cursor based on-screen shooting action, 1990's *Assault City* didn't quite feel right – thanks to its glaring lack of support for the Light Phaser accessory. Sega too was aware of this issue and an updated version of the title was soon released, sporting a huge red silhouette of the peripheral on the game's box.



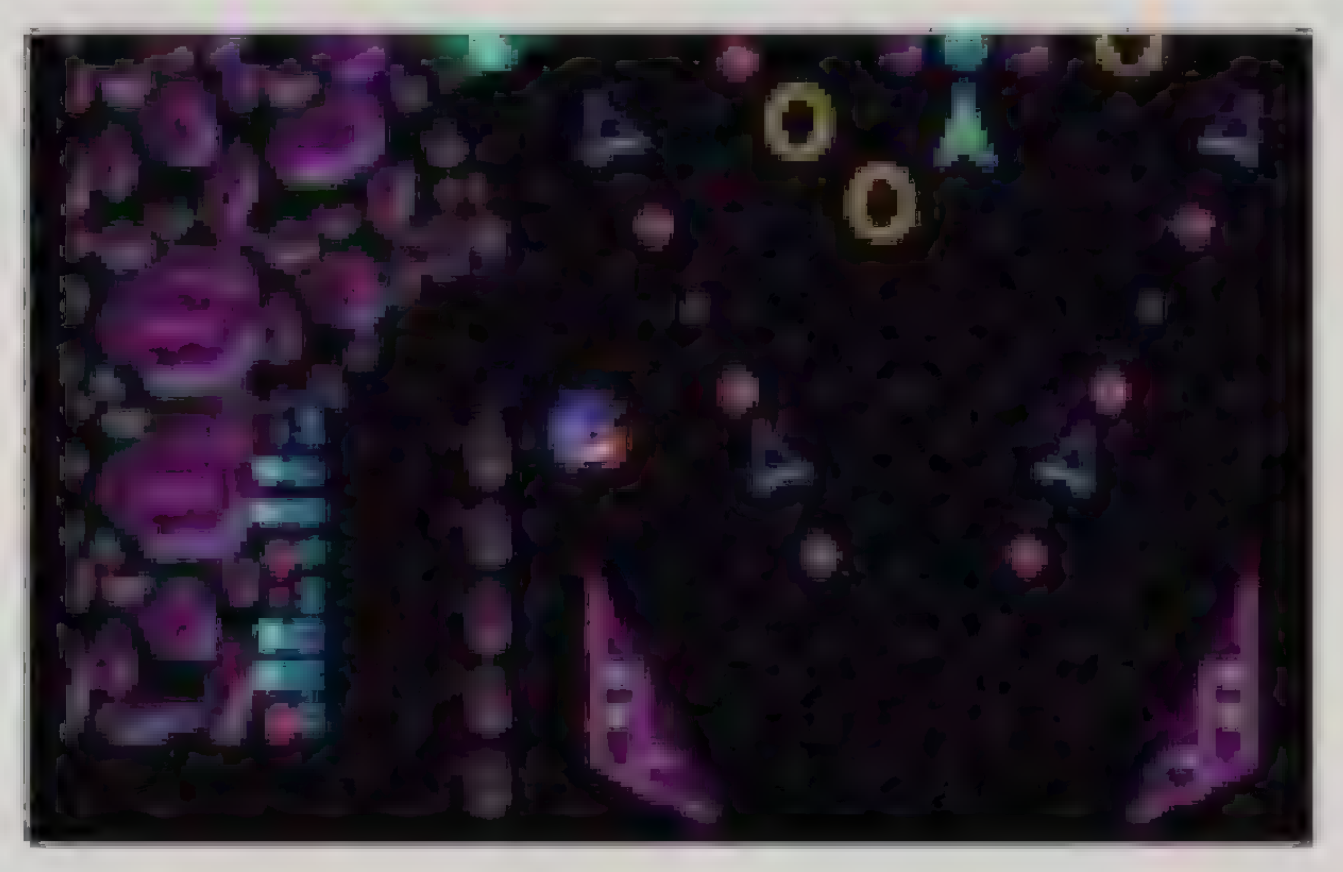
Asterix And The Great Rescue

■ For the third and final *Asterix* title on the 8-bit console, Sega handed over the responsibility to Core Design. While its cross-platform release may not have been up to scratch compared with Sega's prior releases, it eventually became a considerable rarity, though more common in the country the Gauls originated from.



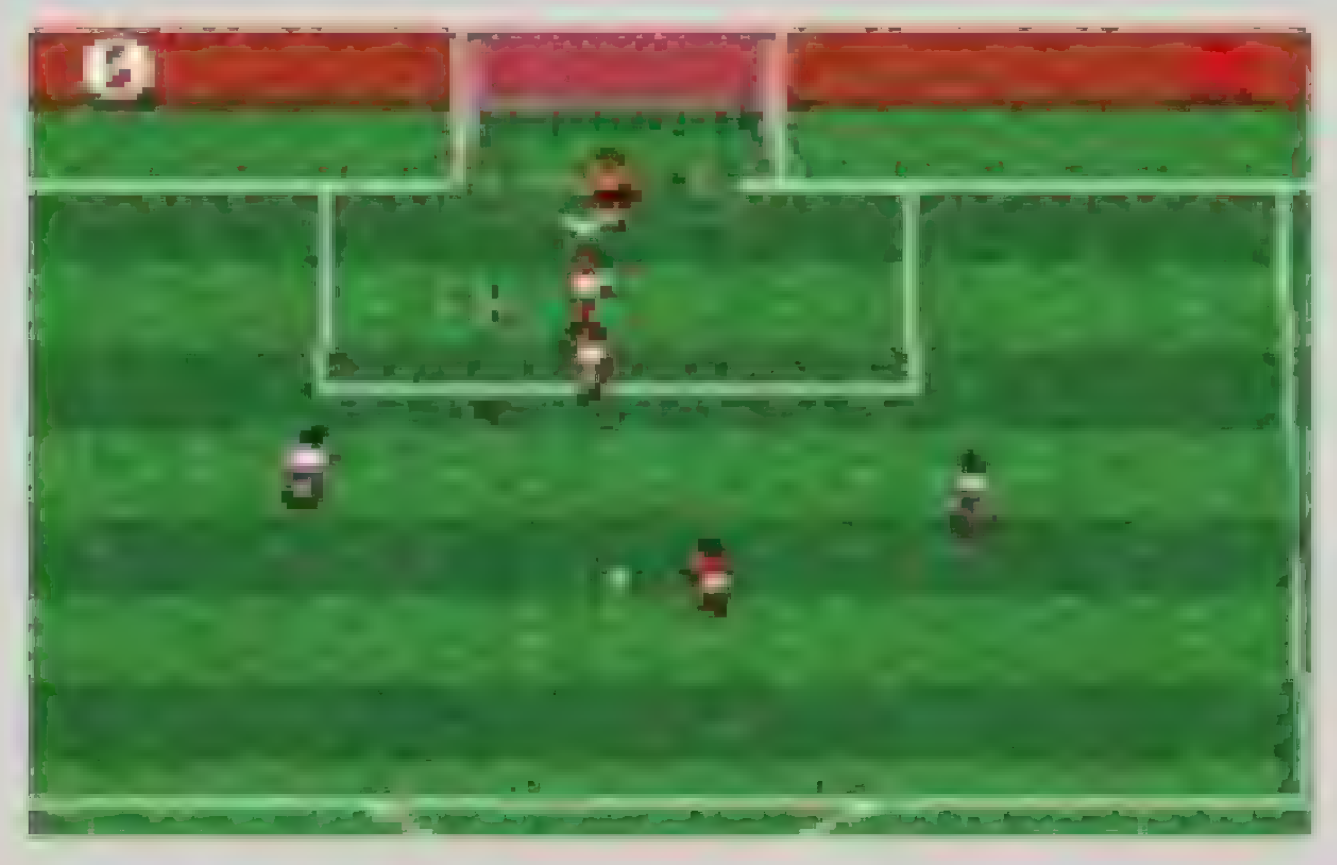
Championship Hockey

■ Two years before *Championship Hockey* skated onto the scene, SIMS set the standard for puck-smashing simulators for the years to come with *Slap Shot*. US Gold's 1992 attempt, however, somehow managed to slip on the ice with its jerky animation, sprite flickering and horrific AI. A title best suited to the sin bin.



Sonic Spinball

■ While most of Sega's 8-bit ports of Mega Drive titles were handled well, something went amiss with Sonic's pinball spin-off. Either the Master System was a little underpowered to handle the fast-paced action, or the game's programmers were a little too lazy to fix the wobbly camera and questionable physics in play.



Ultimate Soccer

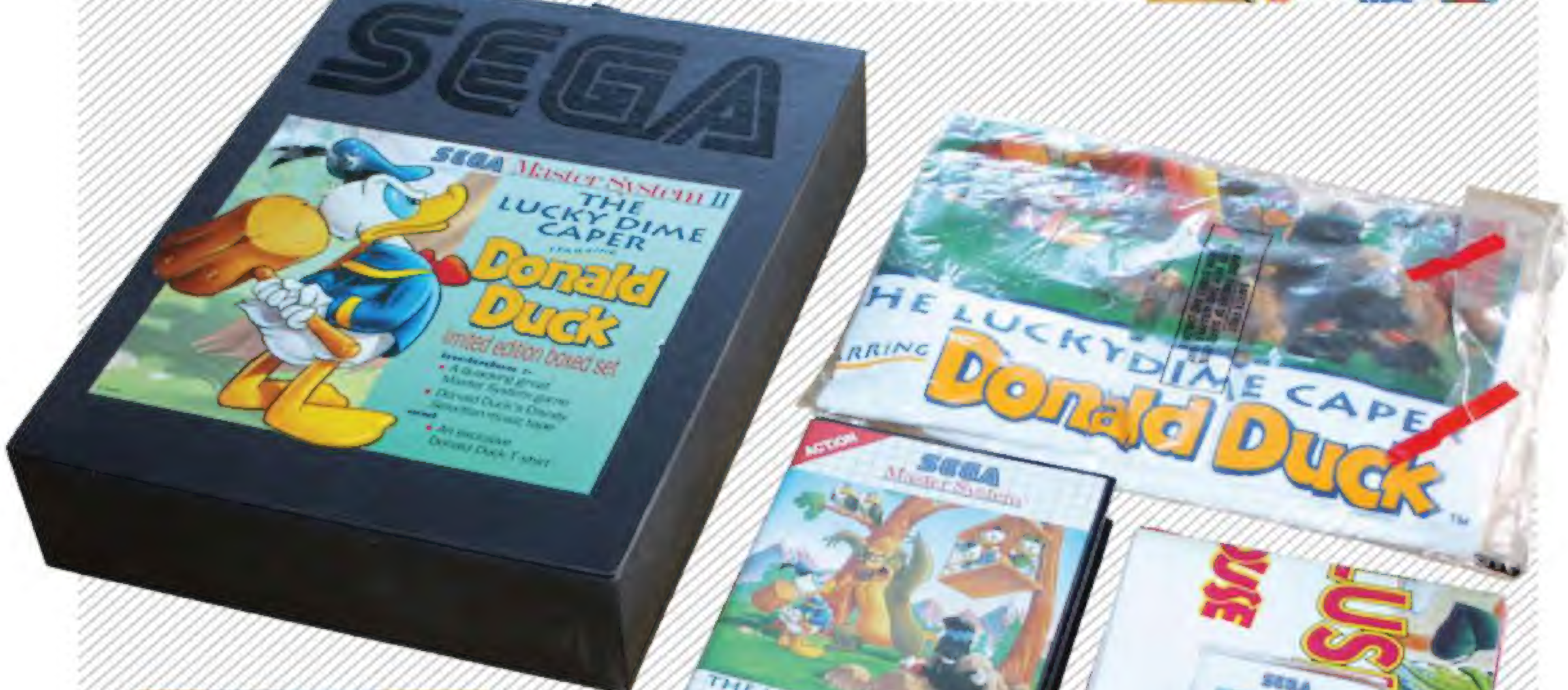
■ With the Master System port of *Sensible Soccer* leaving a lot to be desired, the goal was left wide open for a rival to hit the back of the net. *Ultimate Soccer* was Rare's bold attempt to dethrone Sensible Software, and an admirable one at that. Being a late release on the 8-bit console, it's understandably rare today.

THE JEWEL IN THE CROWN

After a super-rare PAL Master System game? Then this is the one that you should be trying to add to your collection

What makes it hard to find?

■ With disposable casing, a once fashionable T-shirt and outdated audio cassette, it's somewhat understandable that the components of this bumper pack of '90s nostalgia have since been discarded. While locating these contents may be tricky enough, finding a set with all its feathers in good condition is a much harder task.



What makes it so special?

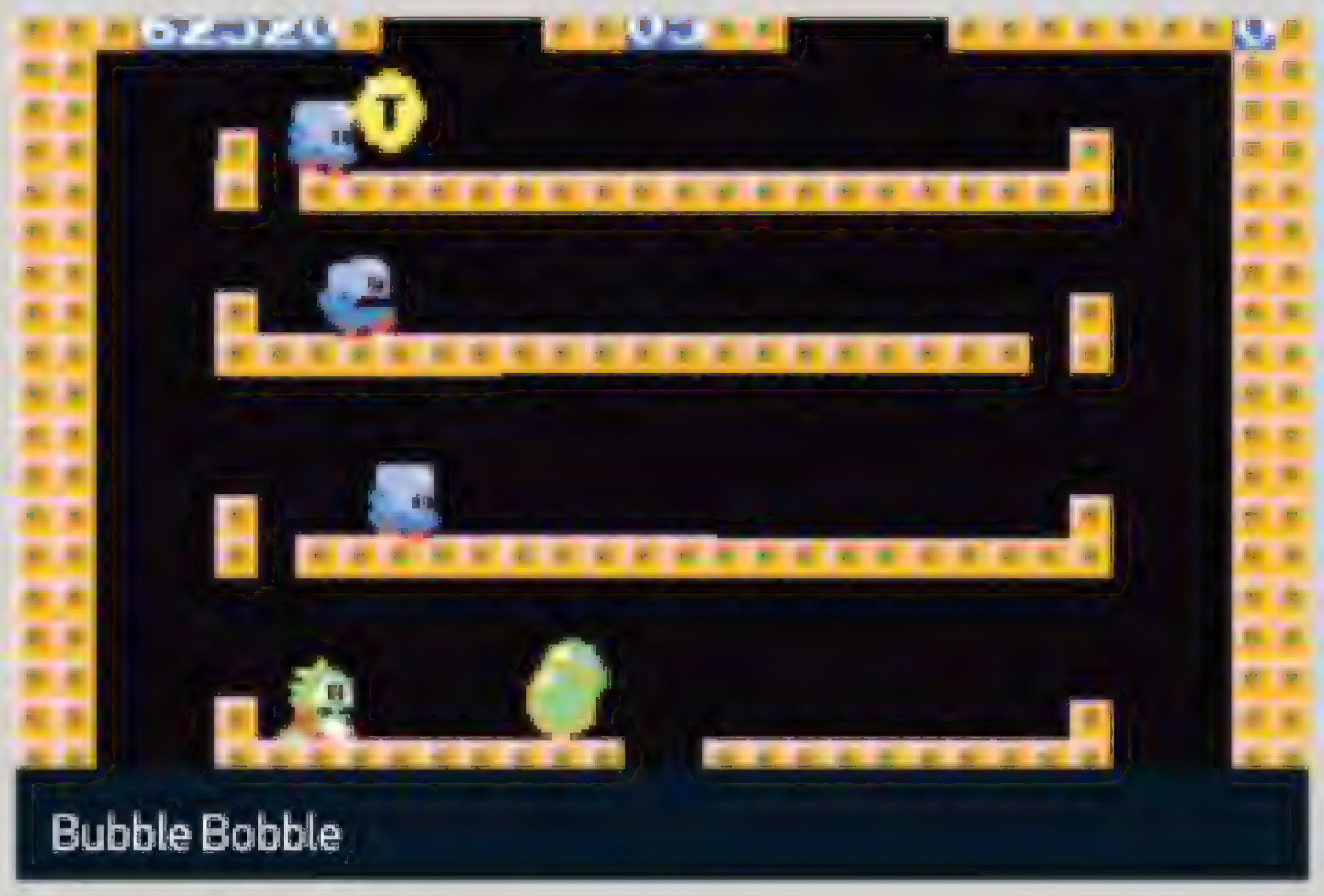
■ In what might have been the first limited-edition Sega product to hit European shelves, Disney teamed up with the videogame giant to celebrate Donald Duck's home console debut. This combined effort in 1991 saw an alluring box set made available in limited quantities, packed to the brim with goodies.

Why is it so expensive?

■ Unlike today's mass-produced 'limited' offerings, the *Lucky Dime Caper* box set really was dispatched in small numbers. The fortunate few lucky enough to own this exotic rarity are more than eligible to join Uncle Scrooge's Fortune 500 equivalent of videogame collections.

THE PAL MASTER SYSTEM GAMES YOU NEED TO OWN

- Ace Of Aces ☐
- Action Fighter ☐
- Addams Family, The ☐
- Aerial Assault ☐
- After Burner ☐
- Air Rescue ☐
- Aladdin (Disney's) ☐
- Alex Kidd In Miracle World ☐
- Alex Kidd In Shinobi World ☐
- Alex Kidd: High Tech World ☐
- Alex Kidd: The Lost Stars ☐
- Alien 3 ☐
- Alien Storm ☐
- Alien Syndrome ☐
- Altered Beast ☐
- America Baseball ☐
- American Pro Football ☐
- Andre Agassi Tennis ☐
- Arcade Smash Hits ☐
- Assault City ☐
- Assault City: Light Phaser Version ☐
- Asterix ☐
- Asterix And The Great Rescue ☐
- Asterix And The Secret Mission ☐
- Astro Warrior / Pit Pot ☐
- Aztec Adventure ☐
- Back To The Future II ☐
- Back To he Future III ☐
- Bank Panic ☐
- Basketball Nightmare ☐
- Batman Returns ☐
- Battle Out Run ☐
- Black Belt ☐
- Blade Eagle 3-D ☐
- Bomber Raid ☐
- Bonanza Brothers ☐
- Bram Stoker's Dracula ☐
- Bubble Bobble ☐
- Buggy Run ☐
- California Games ☐
- California Games II ☐
- Captain Silver ☐
- Casino Game ☐
- Castle Illusion Starring Mickey Mouse ☐
- Champions Of Europe ☐
- Championship Hockey ☐
- Chase HQ ☐
- Cheese Cat-astrophe Starring Speedy Gonzales ☐
- Choplifter ☐


Bubble Bobble

- Chuck Rock ☐
- Chuck Rock II: Son Of Chuck ☐
- Cloud Master ☐
- Columns ☐
- Cool Spot ☐
- Cosmic Spacehead ☐
- Cyber Shinobi, The ☐
- Cyborg Hunter ☐
- Daffy Duck In Hollywood ☐
- Danan: The Jungle Fighter ☐
- Dead Angle ☐
- Deep Duck Trouble Starring Donald Duck ☐
- Desert Speedtrap ☐
- Desert Strike ☐
- Dick Tracy ☐
- Double Dragon ☐
- Double Hawk ☐
- Dr Robotnik's Mean Bean Machine ☐
- Dragon Crystal ☐
- Dragon: The Bruce Lee Story ☐
- Dynamite Duke ☐
- Dynamite Dux ☐
- E-SWAT ☐
- Ecco The Dolphin ☐
- Enduro Racer ☐
- F-16 Fighter ☐
- F1 ☐
- Fantastic Dizzy ☐
- Fantasy Zone ☐
- Fantasy Zone II ☐
- Fantasy Zone: The Maze ☐
- Fire & Forget II ☐
- Flash, The ☐
- Flintstones, The ☐
- Forgotten Worlds ☐
- G-LOC: Air Battle ☐
- Gain Ground ☐
- Galaxy Force ☐
- Gangster Town ☐
- Gauntlet ☐
- Ghost House ☐
- Ghostbusters ☐
- Ghouls'n Ghosts ☐
- Global Defense ☐
- Global Gladiators ☐
- Golden Axe ☐
- Golden Axe Warrior ☐
- Golfamania ☐
- Golvellius: Valley Of Doom ☐
- GP Rider ☐
- Great Baseball ☐
- Great Basketball ☐
- Great Football ☐
- Great Golf ☐
- Great Soccer ☐
- Great Volleyball ☐
- Hang On ☐
- Heavyweight Champ ☐
- Heroes Of The Lance ☐
- Home Alone ☐
- Impossible Mission ☐
- Incredible Crash Test Dummies, The ☐
- Incredible Hulk, The ☐
- Indiana Jones And The Last Crusade ☐
- James Bond 007: The Duel ☐
- James Pond 2: Codename Robocod ☐
- Joe Montana Football ☐
- Jungle Book (Disney's), The ☐
- Jurassic Park ☐
- Kenseiden ☐
- Klax ☐
- KO Boxing (George Foreman's) ☐
- Krusty's Fun House ☐
- Kung Fu Kid ☐
- Land Of Illusion Starring Mickey Mouse ☐
- Laser Ghost ☐
- Lemmings ☐
- Line Of Fire ☐
- Lion King, The ☐
- Lord Of The Sword ☐
- Lucky Dime Caper Starring Donald Duck, The ☐
- Marble Madness ☐
- Marksman Shooting / Trap Shooting / Safari Hunt ☐
- Master Games 1 ☐
- Master Of Darkness ☐
- Masters Of Combat ☐
- Maze Hunter 3-D ☐
- Mercs ☐
- Micro Machines ☐
- Miracle Warriors: Seal Of The Dark Lord ☐
- Missile Defense 3-D ☐
- Monopoly ☐
- Moonwalker (Michael Jackson's) ☐
- Mortal Kombat ☐
- Mortal Kombat II ☐
- Ms Pac-Man ☐
- My Hero ☐
- NewZealand Story, The ☐
- Ninja Gaiden ☐
- Ninja, The ☐
- Olympic Gold: Barcelona '92 ☐
- Operation Wolf ☐
- Ottifants, The ☐
- Out Run ☐
- Out Run 3-D ☐
- Out Run Europa ☐
- Pacmania ☐
- Paperboy ☐
- Parlour Games ☐
- Penguin Land ☐
- PGA Tour Golf ☐
- Phantasy Star ☐
- Pit-Fighter ☐
- Populous ☐
- Poseidon Wars 3-D ☐
- Power Strike ☐
- Power Strike II ☐
- Predator 2 ☐
- Prince Of Persia ☐
- Pro Wrestling ☐
- Psychic World ☐
- Psycho Fox ☐

EXTREMELY RARE Games that have less than a few dozen known copies available.

VERY RARE Very hard to come by. Expect to see only a couple of copies per year.

RARE You should be able to source these in a reasonable amount of time.

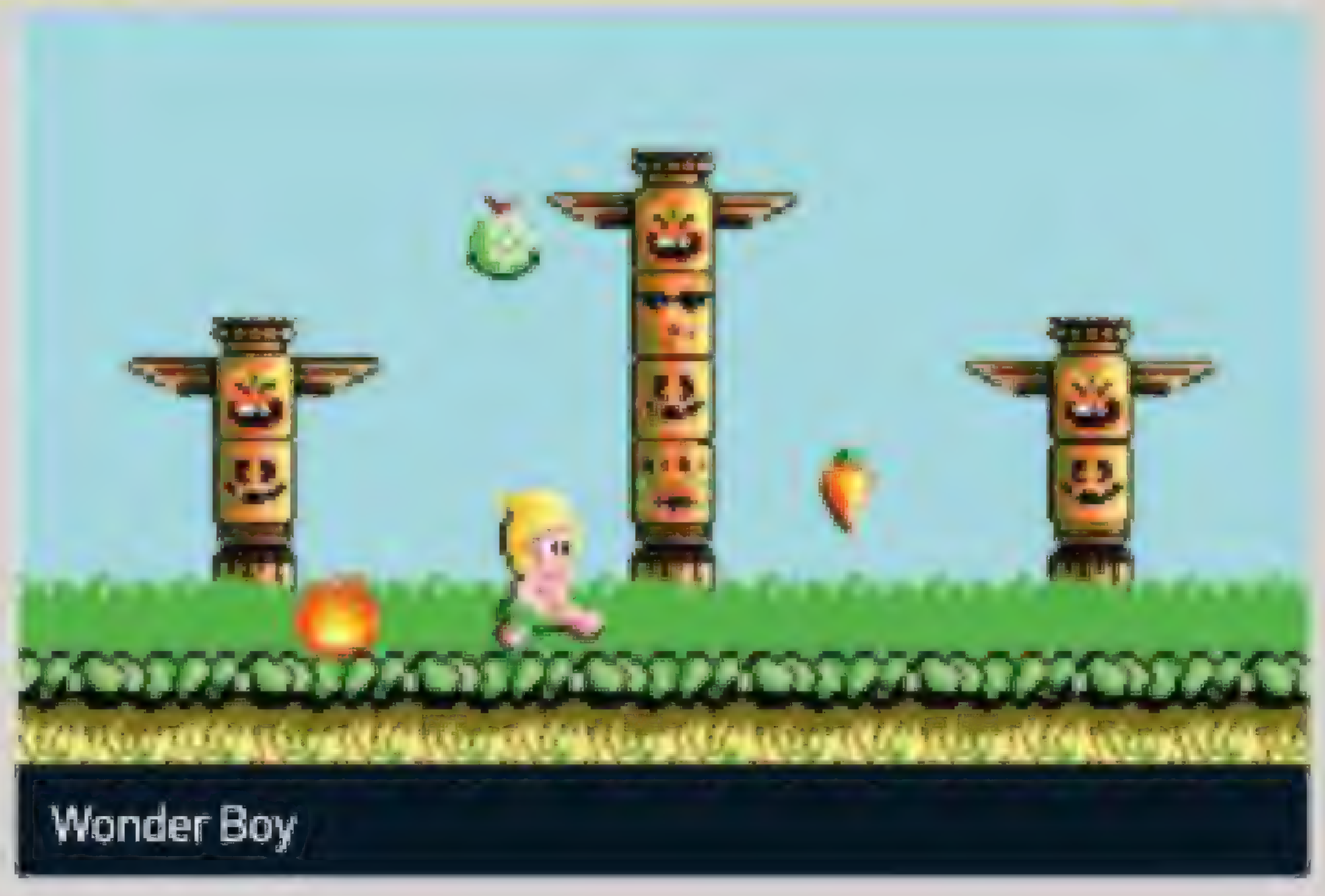
UNCOMMON You won't find them straight away, but you will after a search.

COMMON Always just a click away for the average collector.

VERY COMMON So common you'll find them in most bundles of games you buy.

Shinobi

- Putt & Putter ☐
- Quartet ☐
- R-Type ☐
- RC Grand Prix ☐
- Rainbow Islands ☐
- Rambo III ☐
- Rampage ☐
- Rampart ☐
- Rastan ☐
- Renegade ☐
- Rescue Mission ☐
- Road Rash ☐
- RoboCop 3 ☐
- RoboCop Versus The Terminator ☐
- Rocky ☐
- Running Battle ☐
- Sagaia ☐
- Scramble Spirits ☐
- Secret Command ☐
- Sega Chess ☐
- Sega World Tournament Golf ☐
- Sensible Soccer ☐
- Shadow Dancer: The Secret Of Shinobi ☐
- Shadow Of The Beast ☐
- Shanghai ☐
- Shinobi ☐
- Shooting Gallery ☐
- Simpsons, The: Bart Vs The Space Mutants ☐
- Simpsons, The: Bart Vs The World ☐
- Slap Shot ☐
- Smurfs 2, The: Travel The World ☐
- Smurfs, The ☐
- Sonic The Hedgehog Chaos ☐
- Sonic Spinball ☐
- Sonic The Hedgehog ☐
- Sonic The Hedgehog 2 ☐
- Space Gun ☐
- Space Harrier ☐
- Space Harrier 3-D ☐
- Special Criminal Investigation ☐
- Speedball ☐
- Speedball 2 ☐
- Spellcaster ☐
- Spider-Man Vs The Kingpin ☐
- Spider-Man: Return Of The Sinister Six ☐
- Spy Vs Spy ☐
- Star Wars ☐
- Streets Of Rage ☐
- Streets Of Rage II ☐
- Strider ☐
- Strider II ☐
- Submarine Attack ☐
- Summer Games ☐
- Super Kick Off ☐
- Super Monaco GP ☐
- Super Monaco GP II (Ayrton Senna's) ☐
- Super Off Road ☐
- Super Smash TV ☐
- Super Space Invaders ☐
- Super Tennis ☐
- Superman: The Man Of Steel ☐
- T2: The Arcade Game ☐
- Taz-Mania ☐
- Tecmo World Cup '93 ☐
- Teddy Boy ☐
- Tennis Ace ☐
- Terminator 2: Judgment Day ☐
- Terminator, The ☐
- Thunder Blade ☐
- Time Soldiers ☐
- Tom & Jerry: The Movie ☐
- TransBot ☐
- Trivial Pursuit: Genus Edition ☐
- Ultima IV: Quest Of The Avatar ☐
- Ultimate Soccer ☐
- Vigilante ☐
- Wanted ☐
- Wimbledon ☐
- Wimbledon II ☐
- Winter Olympics: Lillehammer '94 ☐
- Wolfchild ☐
- Wonder Boy ☐
- Wonder Boy III: The Dragon's Trap ☐
- Wonder Boy In Monster Land ☐
- Wonder Boy In Monster World ☐
- World Class Leader Board ☐
- World Cup Italia '90 ☐
- World Cup USA '94 ☐
- World Games ☐
- World Grand Prix ☐
- World Soccer ☐
- WWF Wrestlemania Steel Cage Challenge ☐
- Xenon 2: Megablast ☐
- Ys: The Vanished Omens ☐
- Zaxxon 3-D ☐
- Zillion ☐
- Zillion II: The Tri Formation ☐
- Zool ☐


Wonder Boy

Collector **Q&A**

We speak to James Costelloabout his impressive collection

So what drew you to collecting Sega Master System games and hardware?
It was the main games console I had as a kid and the one I have the fondest memories of. Back then, however, I would only be able to get a few games per year, so once I rediscovered my love for the system and realised I could get most games for a couple of quid I was hooked!

What does the Master System offer over the NES?
I did own a NES at one point and quite enjoyed it but the Master System is where my memories are. You can argue all day about which is technically better or which has the best games but at the end of the day it comes down to personal preference.

How long have you been collecting for?
My Master System collection started in late 2005 and stopped in 2009. Real life took over and I decided I needed to save towards getting my own house and there really is no rush when you're collecting something from the past. Since I have bought my own house now, I am collecting again but at a much slower pace than before.

Which game or piece of hardware has eluded you?
The Master System II cover variation of Sonic The Hedgehog 2. It's a difficult item to find on eBay due to the ordinary version being so common. Hardware-wise, the Master System II *Lion King* set, I've only ever seen one photo of it and don't know anyone who owns it. Other than these, I keep a mental list of items I'd still like to find.

Which item could you not live without?
I have lots of rare and unusual items, but I could not live without the game *Putt & Putter*. I love playing it and the one in my collection is the one I rented countless times from the local video shop – it still has all the rental stickers and holds sentimental value.

What is the most you have spent on a single Master System item and why?
I've always preferred to hunt for bargains: part of of the fun of collecting is finding hidden treasure. I think the most I have spent on one item is my US Kiosk unit (PD-W Unit); it is like a Master System version of the Nintendo M82. It wasn't actually expensive to buy but once I had paid shipping and customs charges, it came to £180!

How does your other half feel about your impressive collection?
She doesn't seem to mind it at all; it stays in one room which isn't used for anything else. I think if I was spending too much time and money on collecting and compromising on our quality of life then she would understandably be unhappy.

What advice would you give other readers interested in collecting Master System games?
Don't rush into it – take your time to track down bargains, as it's much more satisfying. Join some forums and get trading with other collectors; you will meet some great people.

If you could go back in time and buy one Master System game upon its release, which would it be?
Land Of Illusion, because I never had it back in the day and it's an excellent platform game I missed out on.

Finally, Sonic or Alex Kidd?
Always going to be Alex Kidd for me.

*** Pal rarity list courtesy of www.retrocollect.com**

?
296696
5 Sep
?

People are
run your h
Get it toget

incredibly annoyed at the way you
ospital. And I can't say I blame them.
ther or face the consequences!

Diagnosis progress

Theme Hospital

A HOSPITAL WHERE THE CURE IS AS BAD AS THE CONDITION

RETROREVIVAL

» PC
» BULLFROG PRODUCTIONS
» 1997

Only Bullfrog could take an idea as humdrum as running a hospital and turn it into a genuine slice of computer entertainment.

After Bullfrog found success with *Theme Park*, it looked for another potential candidate for a similar simulator. The end result was *Theme Hospital*, which traded in the paying customer for sick patients, theme park attendants for hospital staff, and wild rides for diagnostic and psychiatrist rooms.

It sounds like an awful idea on paper, but it works brilliantly, mainly because the gameplay is so well structured and each new management element is carefully introduced. Initially you'll only have access to small hospital and must fill its floor space as best you can. A receptionist and desk will allow you to receive patients; doctors will diagnose and perform treatments on them; while nurses will assist at useful locations like the pharmacy. Oh, and janitors will look after plants and generally clean up when patients get too sick.

You'll be performing against different tasks that range from receiving a set amount of money to curing a certain number of patients. VIP visits and generally keeping your patients happy while they wait will constantly keep you on your toes. And patients being patients will moan often, whether it's complaining about the lack of seating, or griping about wait times. You'll need to do whatever you can to ease their visits, whether it's getting in an extra janitor to water those thirsty plants, or simply adding more radiators so your hospital stays nice and toasty.

All these elements are cleverly introduced, along with genuinely funny ailments that range from Bloaty Head, to Slack Tongue and Hairyitis. The cures are often just as hilarious as the symptoms and display Bullfrog's typically dark sense of humour. Bloaty Head is solved by the patient's head being popped with a sharp pin, while Slack Tongue sees the tongue being cut off with a slicing machine.

While it is amusing discovering new ailments and seeing their respective cures, it's the tightly designed gameplay and constant juggling of resources that constantly pulls us back for one more go.

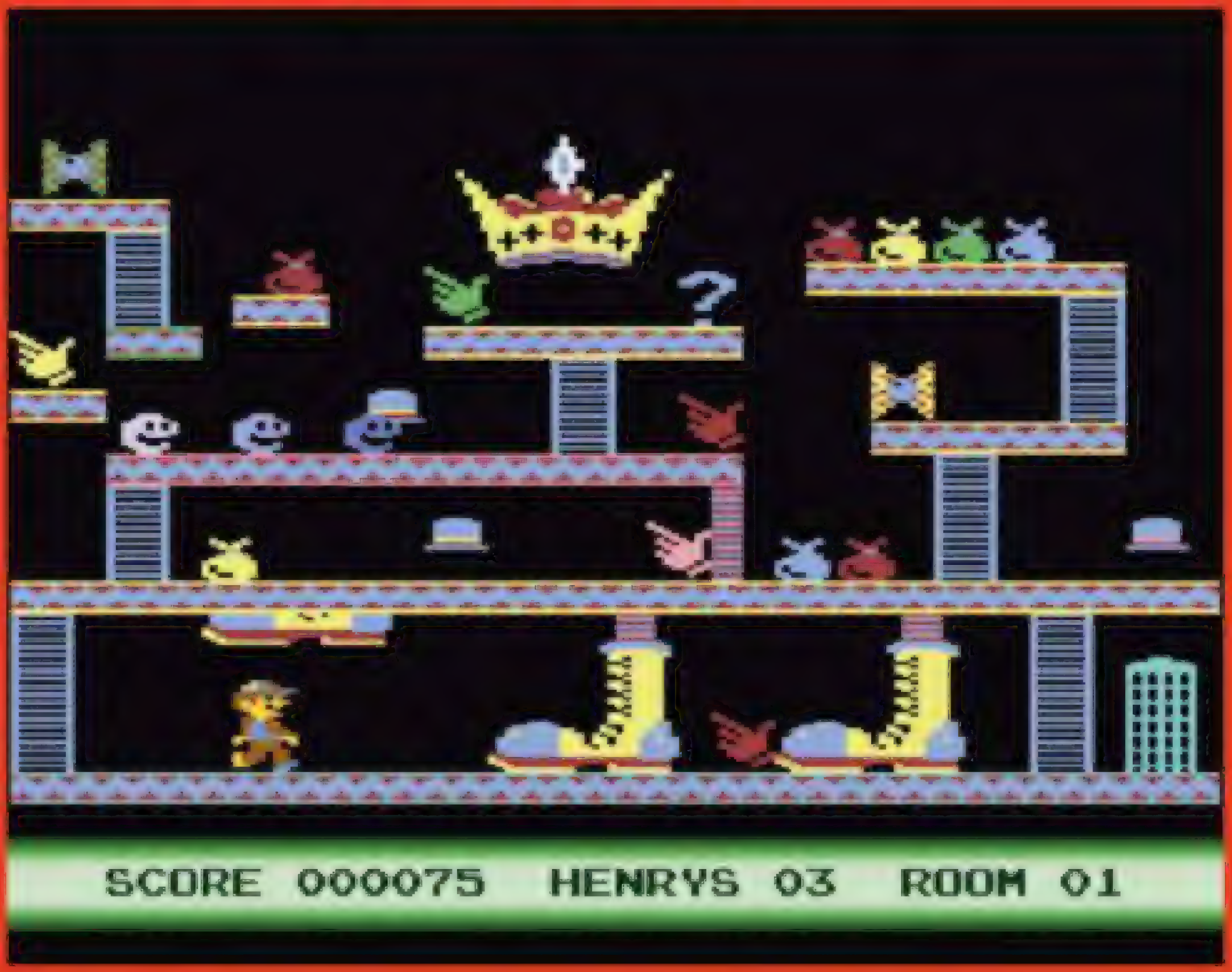
Minority Report

The sprawling games library of Atari's 8-bit home computer line is put under the spotlight this month as we look at great titles that may have been overlooked by some, but are fondly remembered by others. How many of the following have you played?

special ★ ATARI 8-BIT ★ report

HENRY'S HOUSE

■ DEVELOPER: CHRIS MURRAY ■ YEAR: 1987

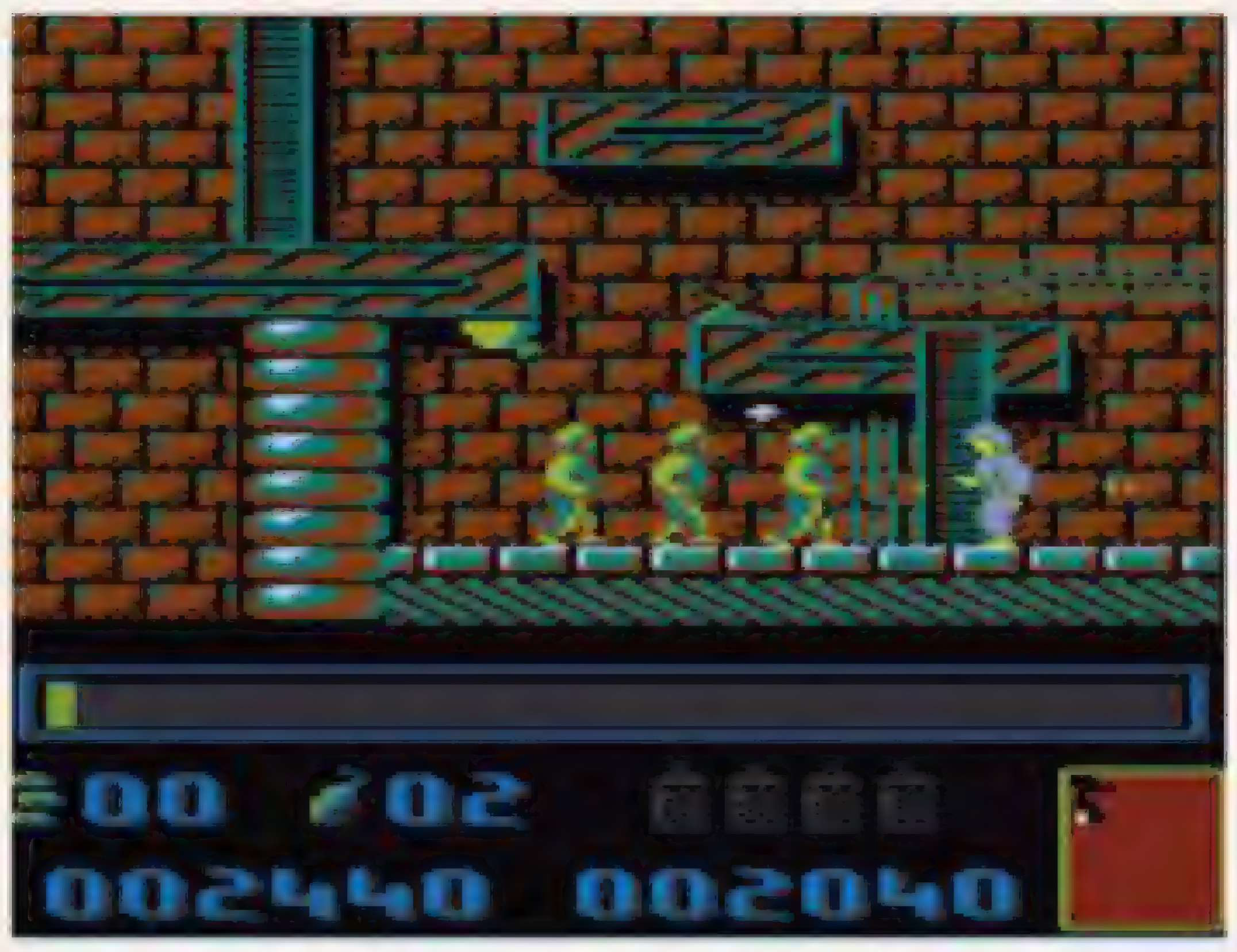


» [Atari 8-bit] Split-second timing is required to avoid getting stamped on by these giant clown shoes.

■ Although its storyline had initially been intended to take advantage of the then topical birth of Prince Harry, *Henry's House* ended up receiving a surreal plot all of its own. The first twist is that young Henry's dad, the king, is an amateur boffin who has foolishly left his lab unlocked. Predictably, Henry can't resist taking a quick unsupervised tour, which neatly leads to a scene-setting second plot twist as Henry gulps down an experimental concoction he finds sitting on his father's workbench and promptly shrinks to six inches tall.

With the back story taken care of, the player is tasked with reuniting the now diminutive royal with his monarch/scientist dad in the hope that he can come up with an antidote. This is made all the more difficult by the fact that the palace you have to guide Henry safely around is now giant, meaning that normally harmless household objects have become potentially deadly threats. And conveniently, for the longevity of the game, Henry's science geek father is dealing with kingly duties at the other end of the royal household. By way of cranking up the difficulty another notch, the keys needed to unlock each palace room are now far out of reach of his royal shortness, which adds treacherous climbing to the game's proceedings.

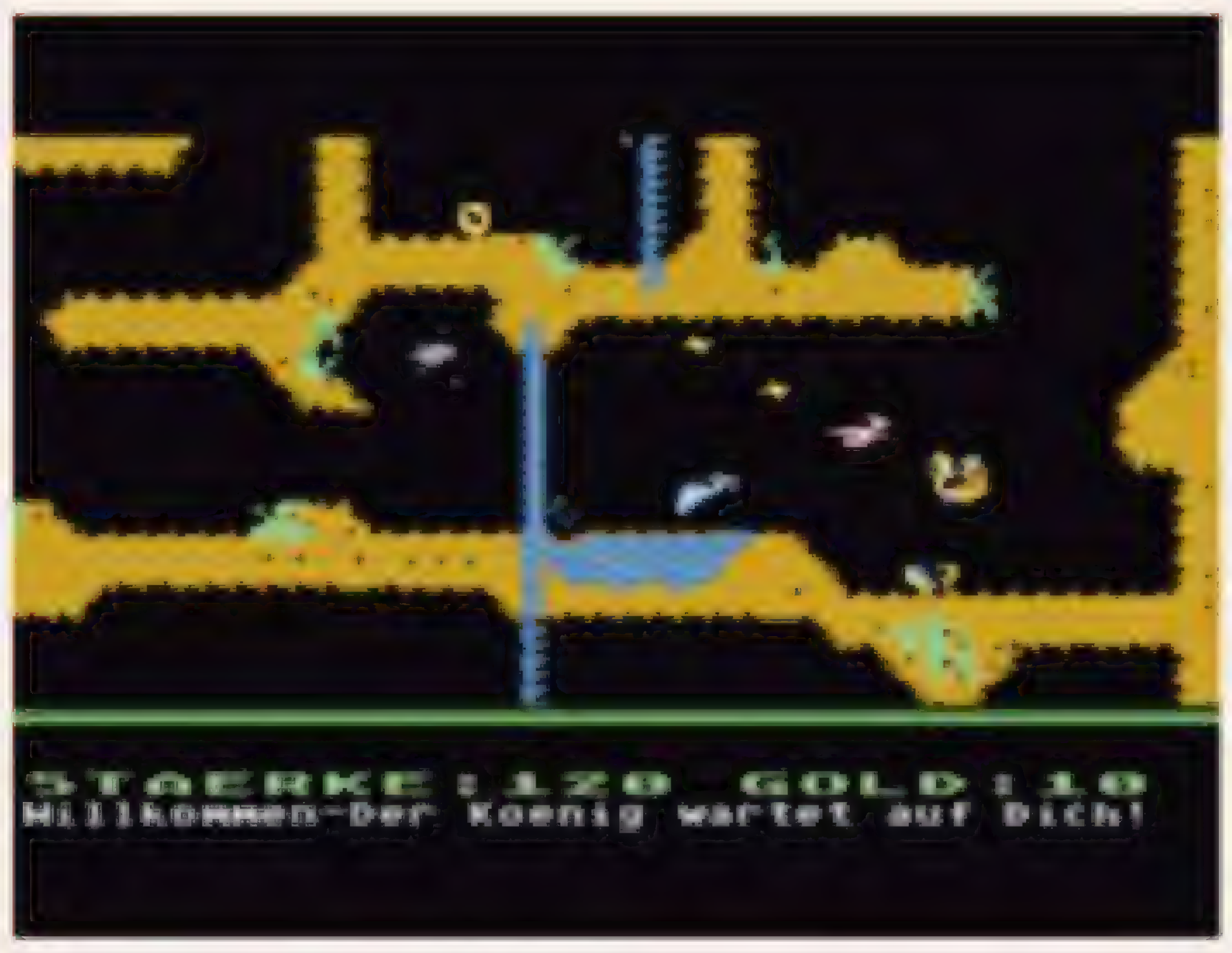
Henry's House requires exact timing and positioning of the player character, but this doesn't adequately explain the demanding nature of this brightly coloured and attractive platformer. The game simply allows no room for error; but in doing so, while always



» MISSION

■ DEVELOPER: JANUSZ PELC ■ YEAR: 1991

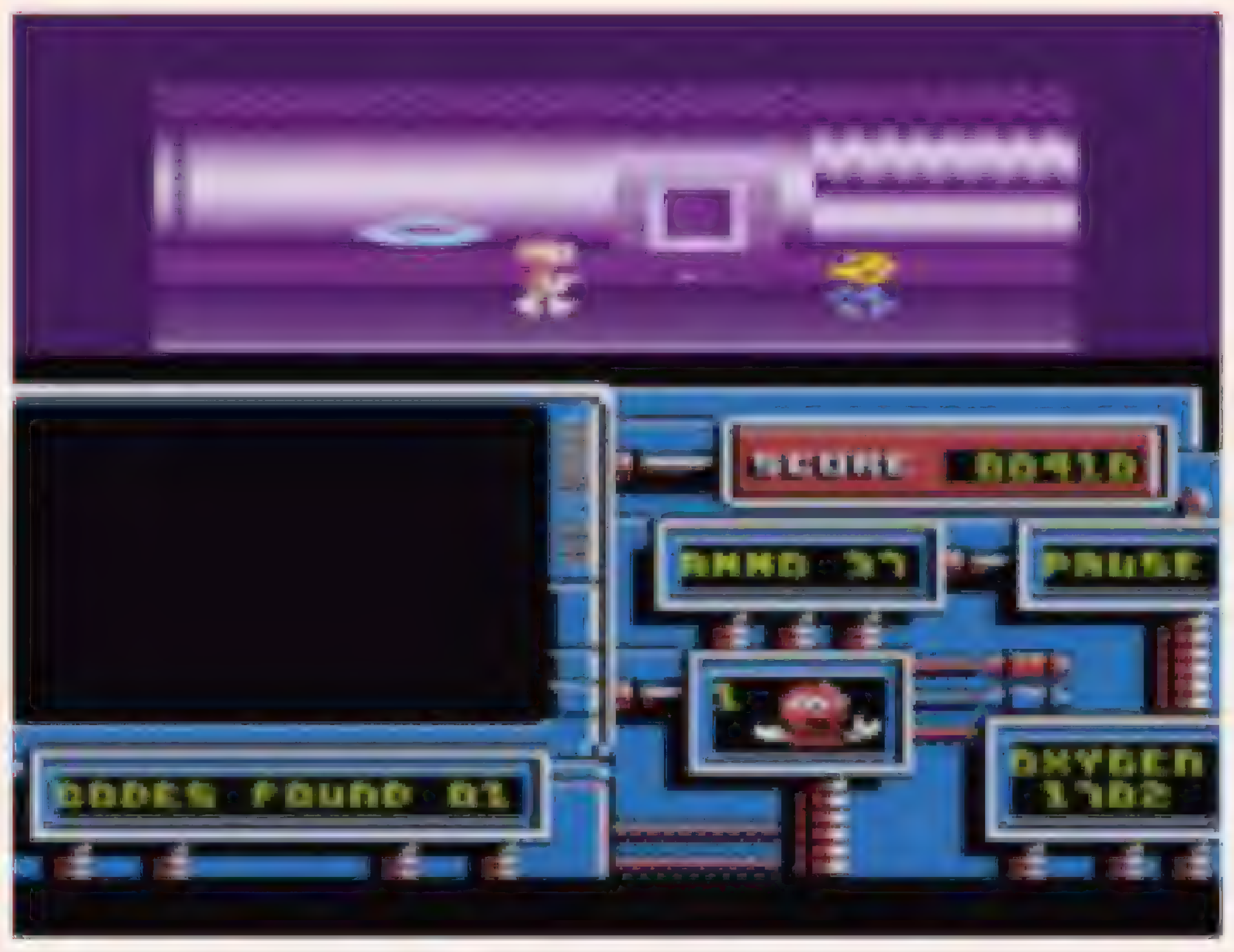
■ Arriving late in the Atari 8-bit line's commercial lifespan, *Mission*, or *Misja* as the original Polish version was known, is a winning combination of platformer and run-and-gun. The aim of the game is to infiltrate an enemy's huge military complex – and having done so, locate four information canisters and make your way back to the exit where a helicopter awaits. Standing between the player and victory are numerous enemy forces and armaments that require either a well-thrown grenade or well-timed jump to get past. Although a late arrival, *Mission* is an accomplished title, boasting nicely animated sprites, well-thought-out levels and a vast playfield.



» CAVELORD

■ DEVELOPER: PETER FINZEL ■ YEAR: 1984

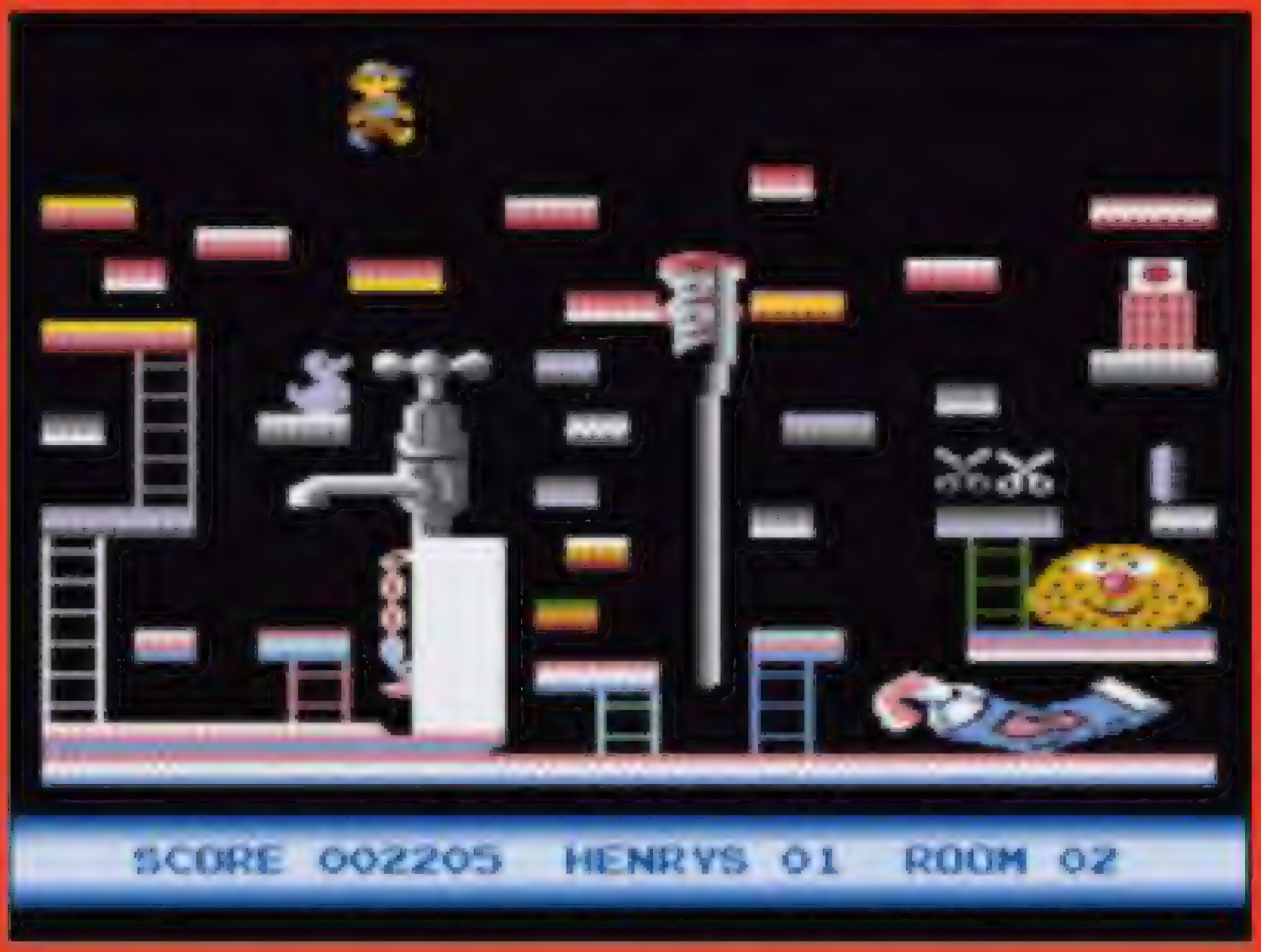
■ Due to it being an Atari 8-bit series system exclusive, and one seemingly only released in Germany, *Cavelord* isn't at all well known. The game puts you in charge of Telos and his winged horse Pegamis, with the objective of collecting three pieces of a crown and returning them to a king. The crown pieces can be found in two vast smoothly scrolling caves, which become easier to navigate once you master the game's highly responsive controls. Impressively animated obstacles and flying creatures sap your strength, while magical objects replenish it. What makes *Cavelord* so easy to recommend, though, is its slick and addictive gameplay.



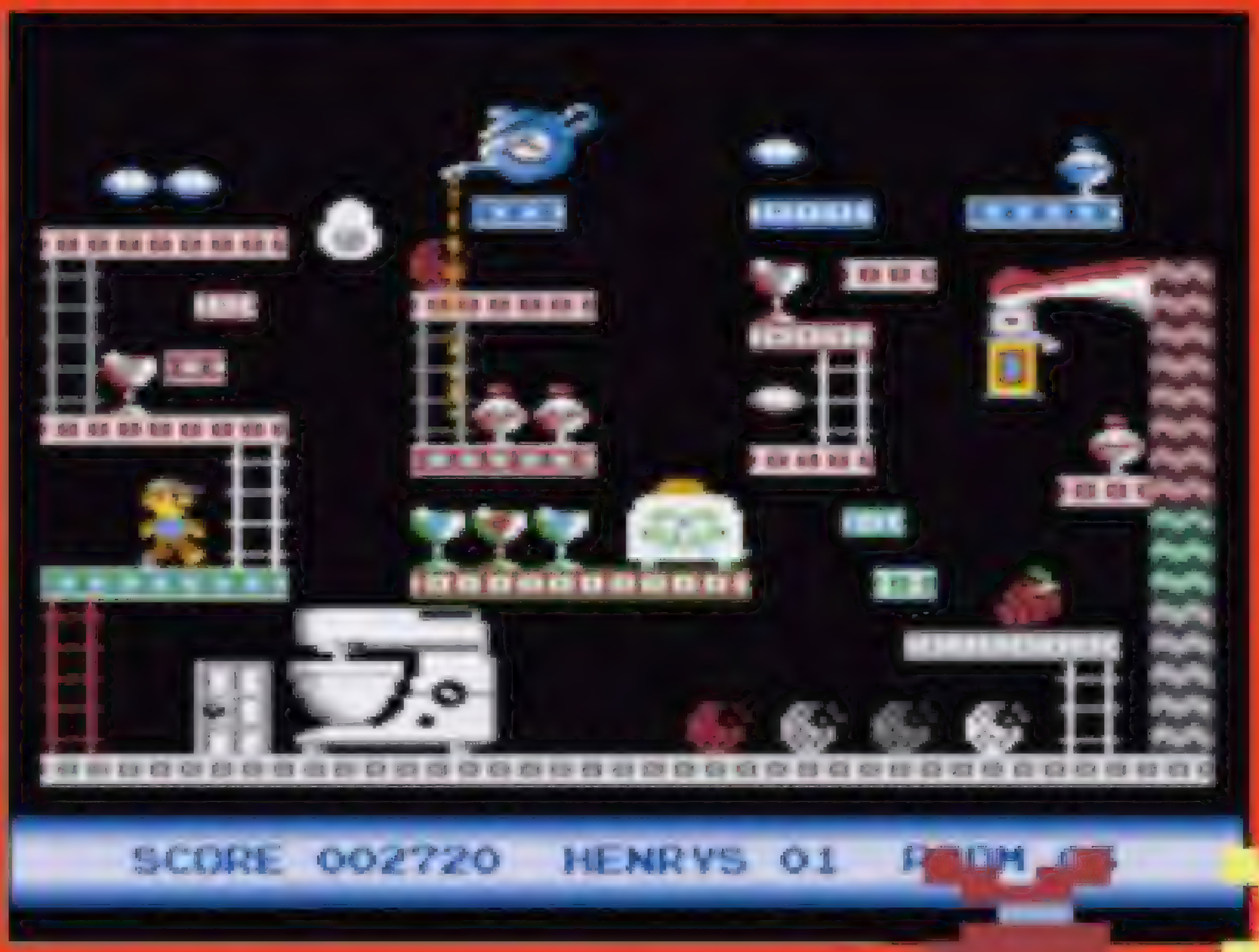
» SPACE LOBSTERS

■ DEVELOPER: IVAN MACKINTOSH ■ YEAR: 1987

■ Ivan Mackintosh's *Space* *Lobsters* marks one of several outings for his cute creation Crumble, promoted here to Captain Crumble, of the starship Columbus. The best way to explain *Space Lobsters*' gameplay is probably to say that it doesn't fit neatly into any one genre. There's a certain amount of shooting lobsters, but the game also has secondary elements such as trading points for ammo and extracting hidden codes from Columbus's various computer terminals. *Space Lobsters*' other asset lies in its glorious visuals, with the trade-off being a small main play area; but this is a minor issue, and not one that effects the overall enjoyment of the game.



[Atari 8-bit] Only a few items left to collect, but a giant toothbrush guards the exit.



[Atari 8-bit] The kitchen needs to be cleared up if you want to progress.

» ABOUT THE SYSTEM

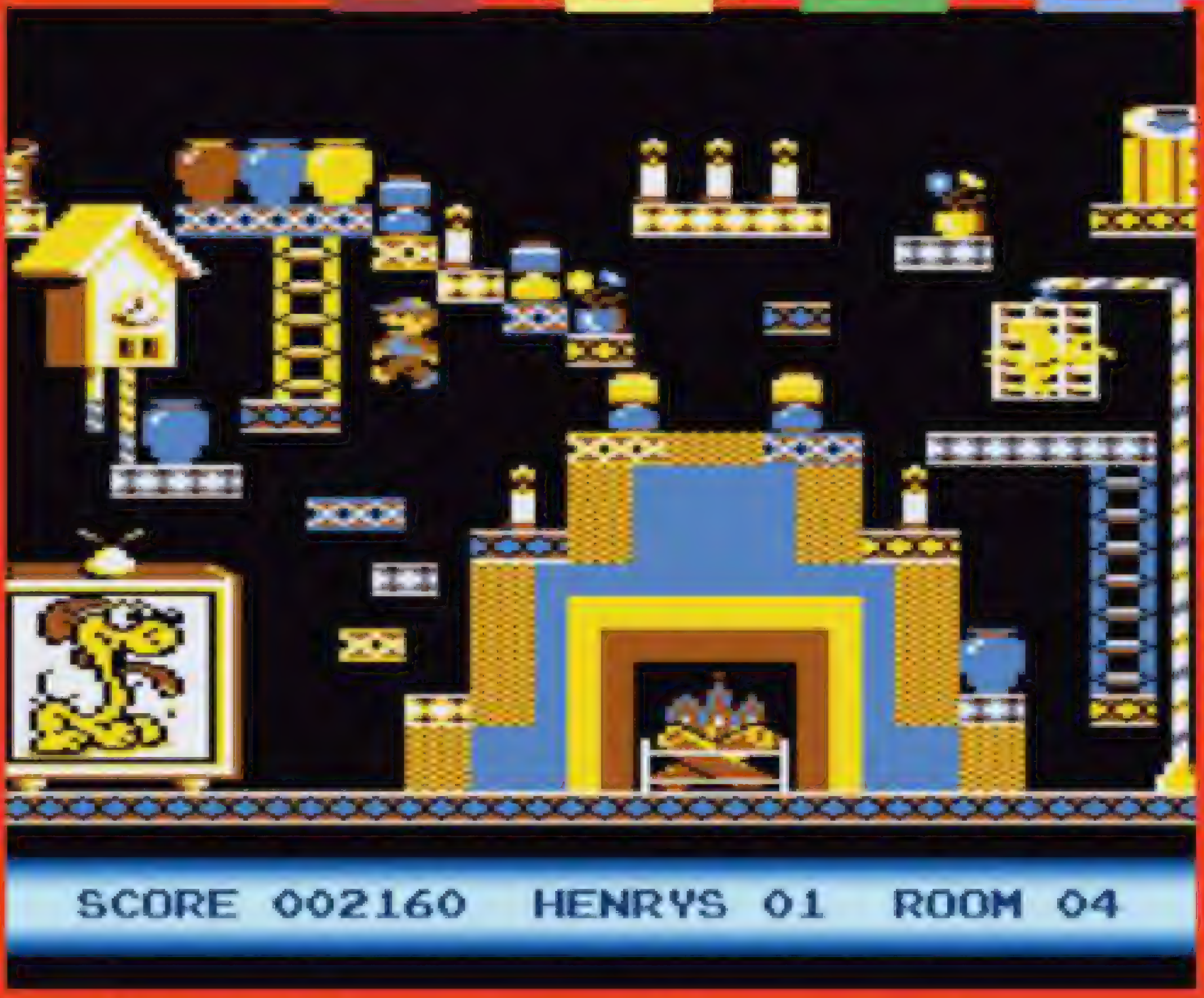
- The first models in Atari's 8-bit home computer series, the 400 and 800, were launched in 1979.
- As you would expect, given Atari's heritage, its computers were designed with gaming in mind.
- Atari's XEGS console was based on one of its last 8-bit computers, the 65XE.

remaining fair, it becomes a highly compulsive proposition.

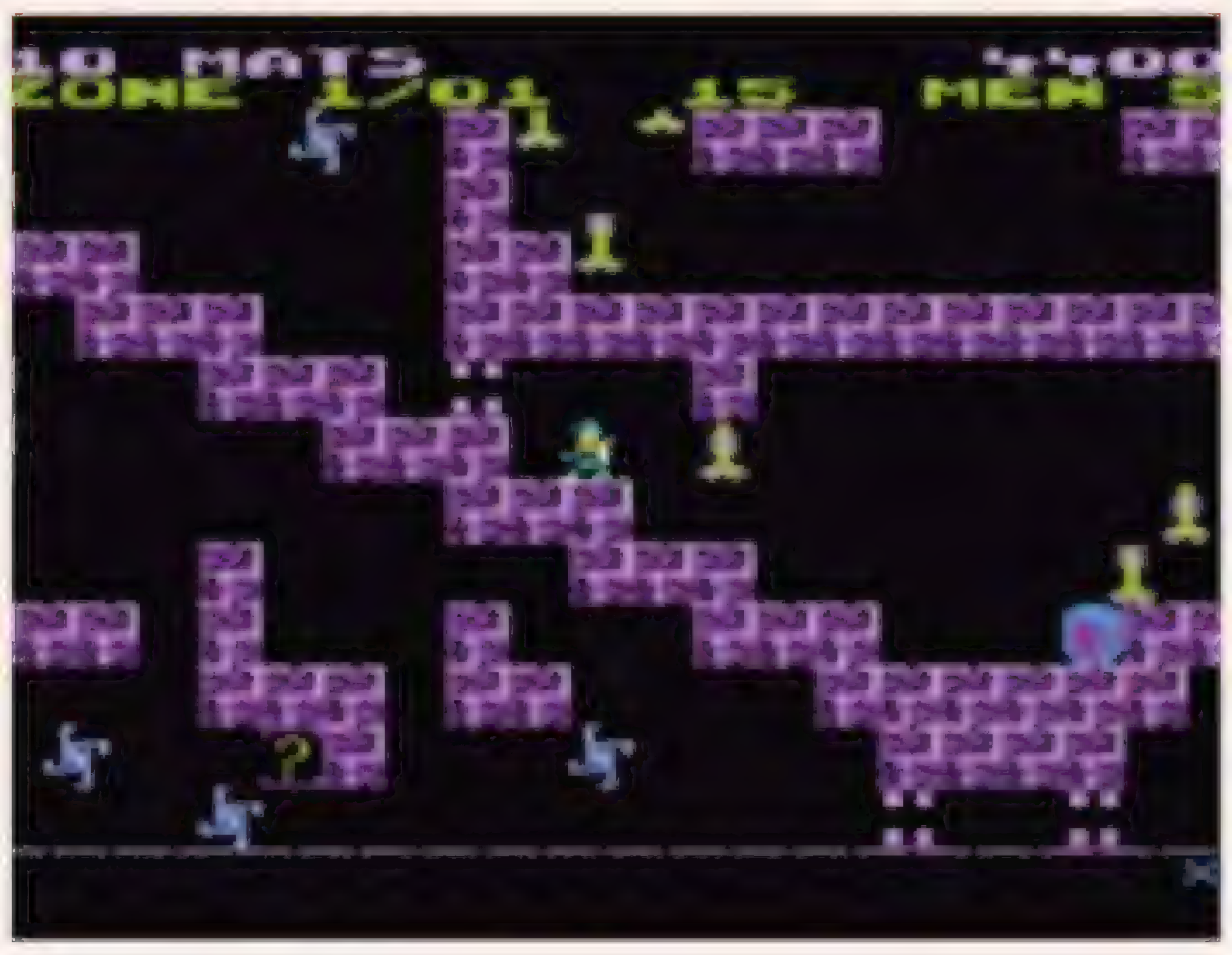
The play area is split into eight differently themed palace rooms, each with correspondingly themed hazards and items requiring collection. That's not to say that merely collecting every item in a room allows you to progress, as it doesn't – you also have to obtain a key to unlock the next room, which doesn't appear until you have certain objects in your possession. Predictably, and by way of placing the player in further jeopardy, keys always materialise in the part of the room that's most inconvenient to reach. This generally means that the player has to backtrack along the path they've taken, avoiding that room's many obstacles and opponents for a second time.

Henry's House shouldn't be judged on toughness alone, though. Due attention should be given to the title's sparkling visuals, which make excellent use of the host system's extensive colour palette and really jump off the screen. The game also has so many nice touches in terms of gameplay, especially in its use of surreal humour; a high point being the screen-sized killer toothbrush – complete with brushing sounds, flying roast turkeys and demented cuckoo clock.

Aesthetics aside, *Henry's House* offers a real challenge to those seeking the sort of unforgiving platform action that fell out of fashion along with the 8-bit home computer, when miners and moles passed the genre's baton to plumbers and hedgehogs. Thankfully, though, the surreal humour linked to platform games didn't go anywhere, and the fact that *Henry's House* has that in spades will hopefully ensure its place in platforming history – in spite of its sheer difficulty!



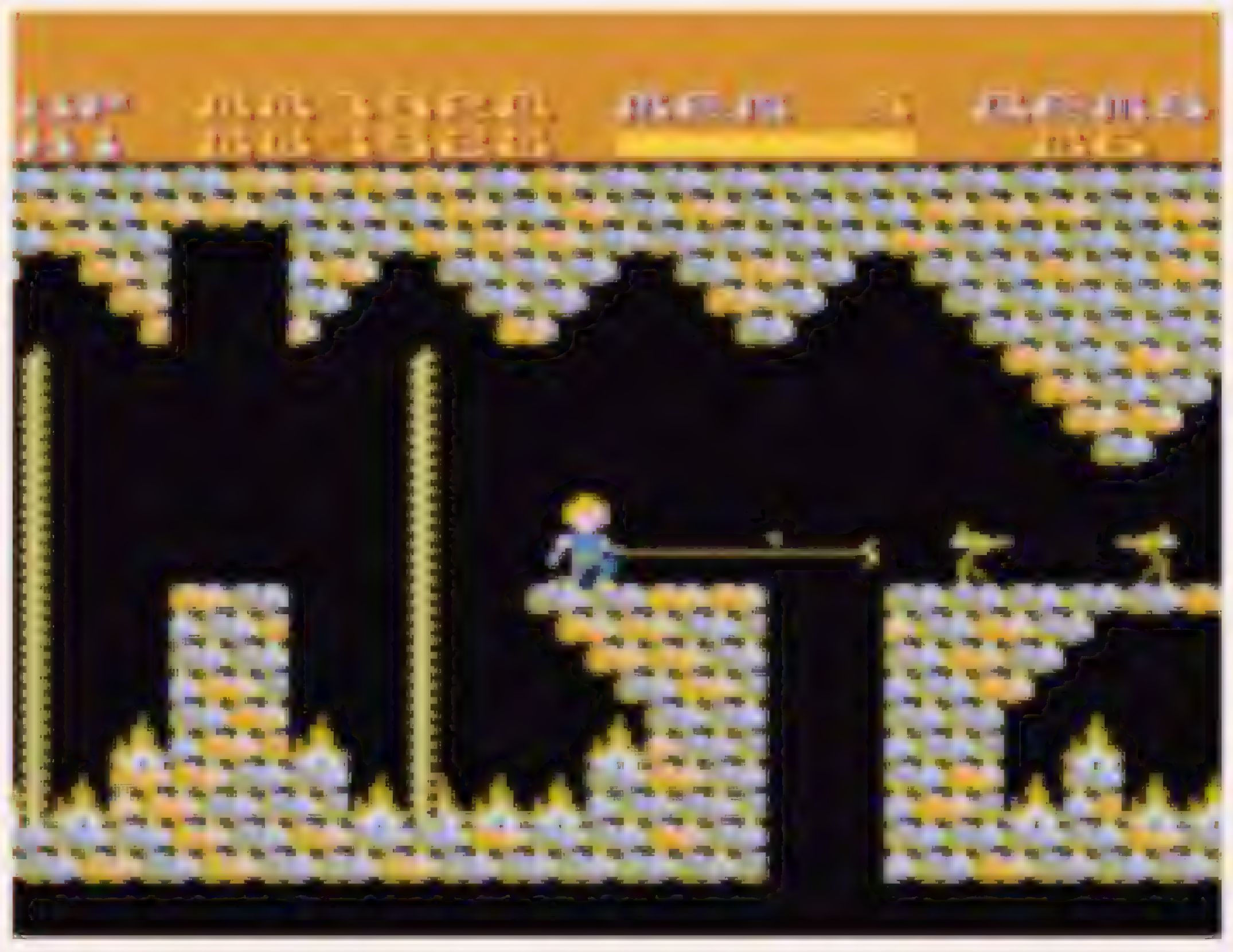
[Atari 8-bit] Easy does it. One wrong move could set off the demented cuckoo clock.



» ZONE X

DEVELOPER: DEREK JOHNSTON ■ YEAR: 1985

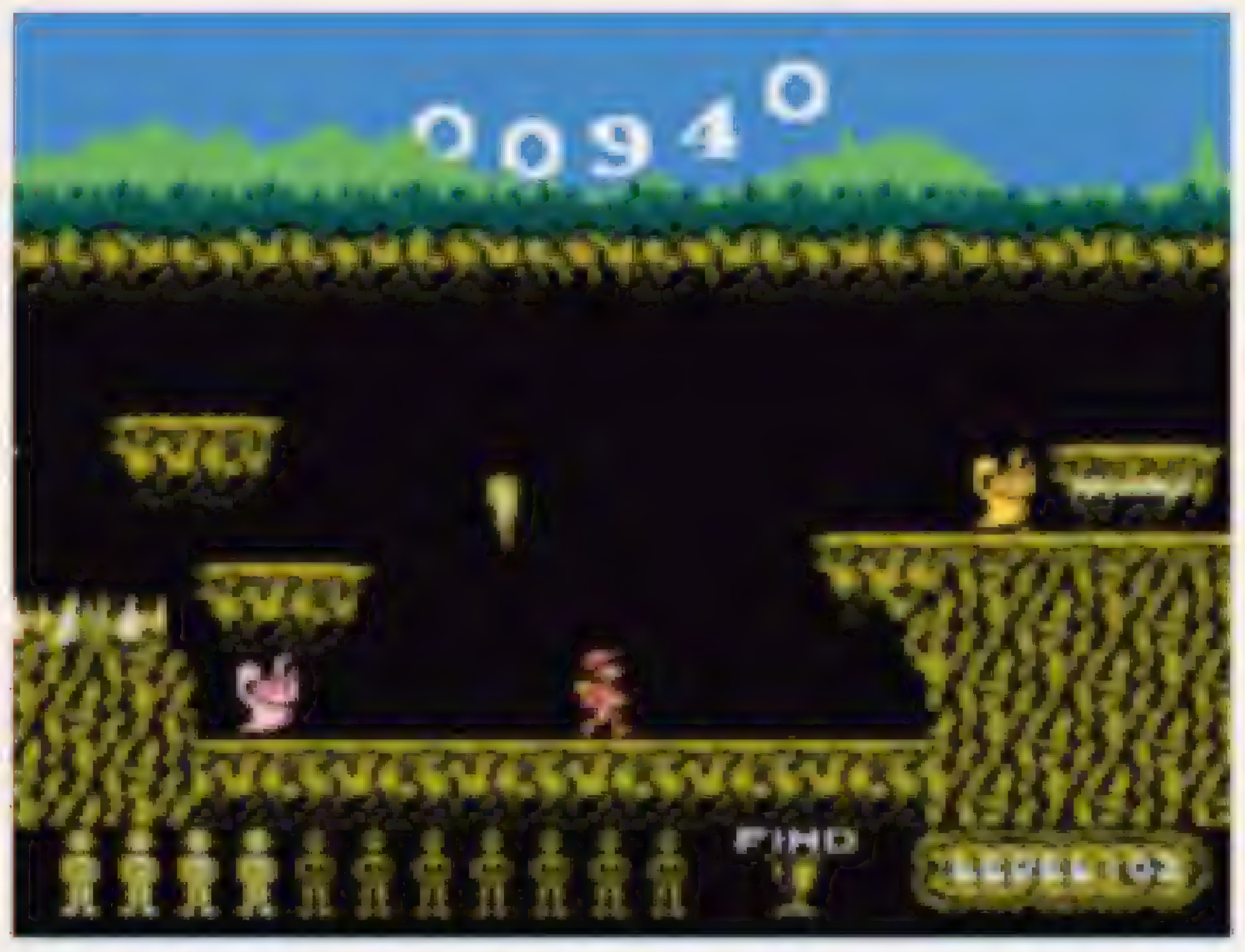
■ ***Zone X* looks** like a top-down dungeon crawler along the lines of the arcade classic *Gauntlet*, but any similarity is purely superficial. It offers a far more tactical challenge and in fact the main character is weaponless, so it's a case of avoiding hazards rather than blasting them. Your main objective is to collect plutonium deposits scattered around a mine and safely deposit them in lead-lined containers. A protective suit provides limited protection from radioactivity; meanwhile locked doors, crumbling walls and robotic guards require keys, spades and good reflexes. The game's main attraction lies in its finely balanced risk-and-reward gameplay.



» TWILIGHT WORLD

DEVELOPER: MATTHEW TRIMBY ■ YEAR: 1986

■ **Underground worlds used** to be a source of great inspiration for developers; think *Monty Mole*, *Boulder Dash*, *Underwurlde* and so on. *Twilight World*, a demanding platformer, is another example. The action is split over 11 dungeons and although the game is visually consistent throughout, each stage mixes things up enough to hold the player's interest. There are well-thought-out level designs where you have to devise elaborate routes to overcome the game's many perils; but as a concession to its difficult nature, mishaps deplete an energy bar rather than costing a life. This tough gameplay is also offset by the satisfaction gained from making progress.



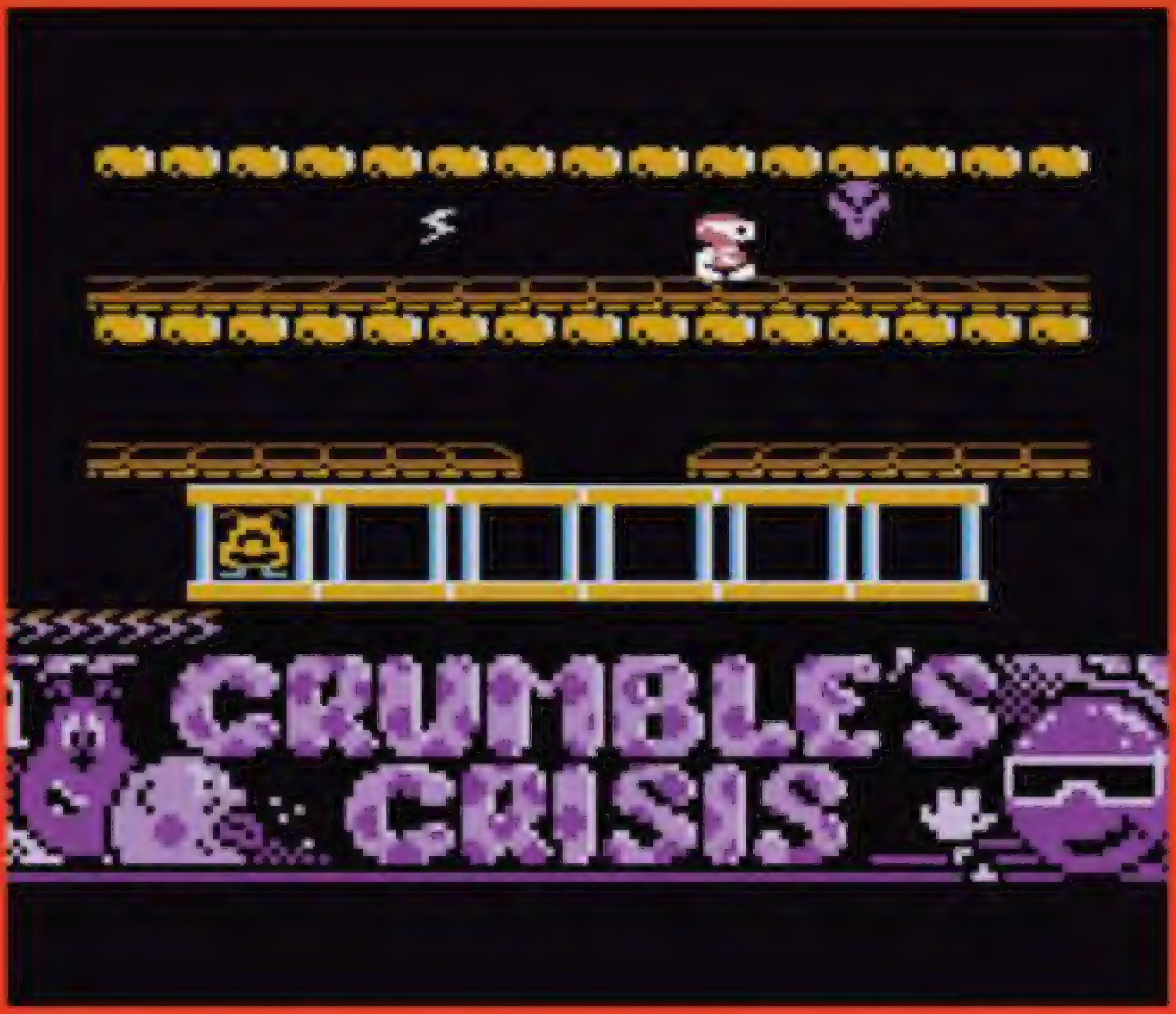
» CAVERNIA

DEVELOPER: IVAN MACKINTOSH ■ YEAR: 1990

■ ***Cavernia* proves just** how much a developer can squeeze out of a hardware platform that it's become really familiar with. It's the little things you notice, like the animated score dipping behind the parallax scrolling backgrounds and the way the main character's hat bobs up and down as he walks. This colourful platform affair is equally polished in respect of its gameplay, which leans towards console-type thrills and spills rather than pixel-perfect jumping. The aim is to avoid each stage's opponents and obstacles while collecting the objects needed to make that level's key appear. It's certainly a simple premise, but one that's well worked over 16 levels.

Minority Report

CRUMBLE'S CRISIS



» [Atari 8-bit] Navigating lightning storms past a creepy-looking skull while on the hunt for fuzzies.

■ DEVELOPER: IVAN MACKINTOSH ■ YEAR: 1987

■ **Intergalactic zookeeper may be one of the stranger gaming roles you ever consider taking on, but that's exactly what's required of you in *Crumble's Crisis*. The suitably humorous crisis of the title revolves around the safe retrieval of 30 alien creatures, called fuzzies, which are running riot around the five sectors of a multiverse. You play Crumble, the keeper who forgot to lock the doors to the fuzzies' enclosures, and your goal is to make use of a jet-pack to round up the creatures and trap them in cages.**

Your task would be far simpler if the fuzzies didn't keep teleporting from place to place, and didn't hide in the most dangerous locations where high-speed collisions with walls or ceilings and contact with resident ghosts and ghouls proves immediately fatal.

The gameplay is built around tight play areas which force the player to squeeze through small spaces while avoiding the game's many antagonists, deadly inanimate objects and surface areas. This can be frustrating, but as the collision detection is spot on, you find yourself persevering. There's also a mechanism used to heighten tension, where your limited time is decreased by lightning storms that occur if you spend too long in one of the game's many flick screens.

Graphically, *Crumble's Crisis* is nicely varied from room to room and sector to sector, which helps you keep your bearings in such a big game. Even if you initially fail to see some of those later stages, though, you'll certainly feel inclined to keep trying.

» JUMPMAN

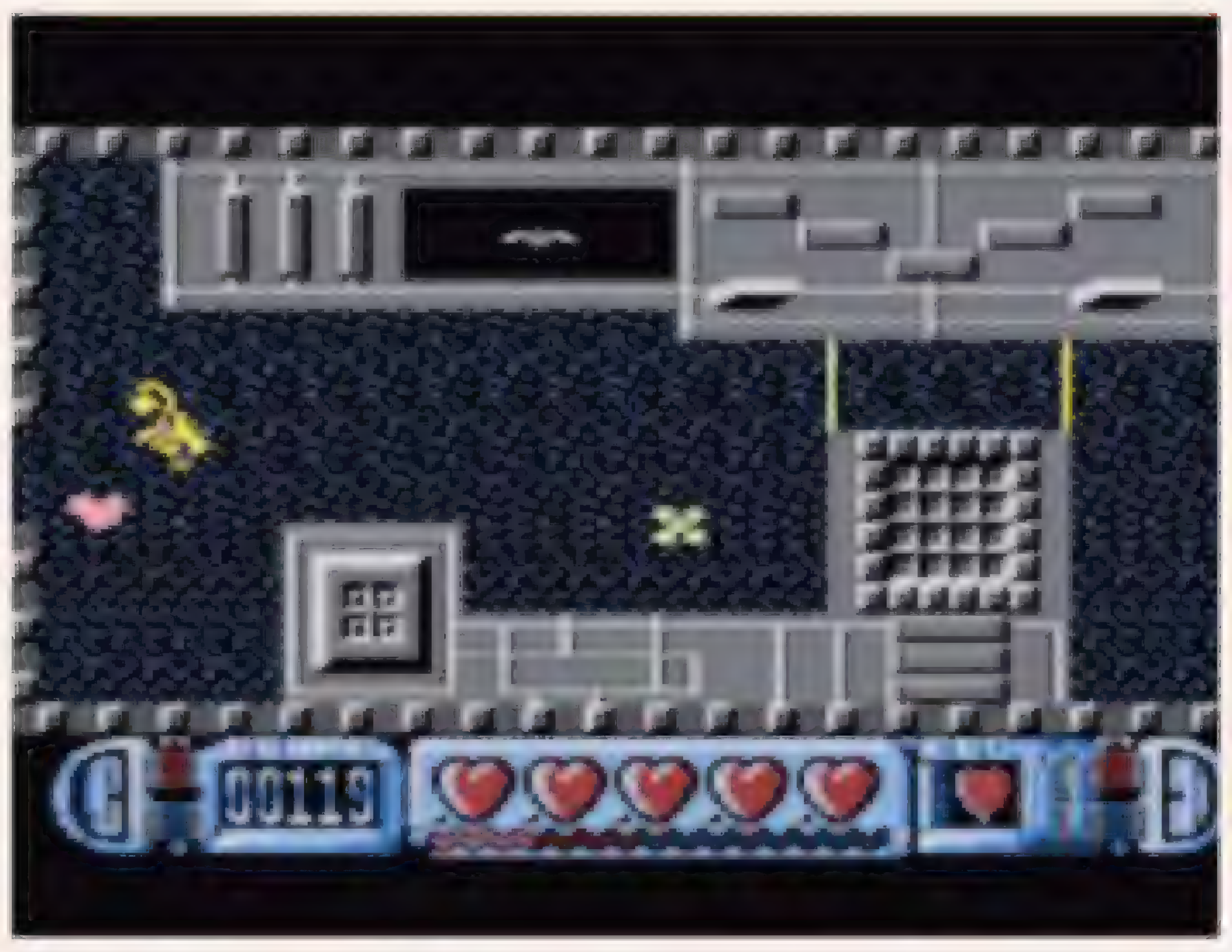
■ DEVELOPER: RANDY GLOVER ■ YEAR: 1983

■ Sometimes simple is best, and that's certainly the case with *Jumpman*. Climb the ladders and leap from platform to platform as you try to defuse all the bombs. There's a hilarious animated death scene too.

» ELECTRICIAN

■ DEVELOPER: DAVID BUNCH ■ YEAR: 1984

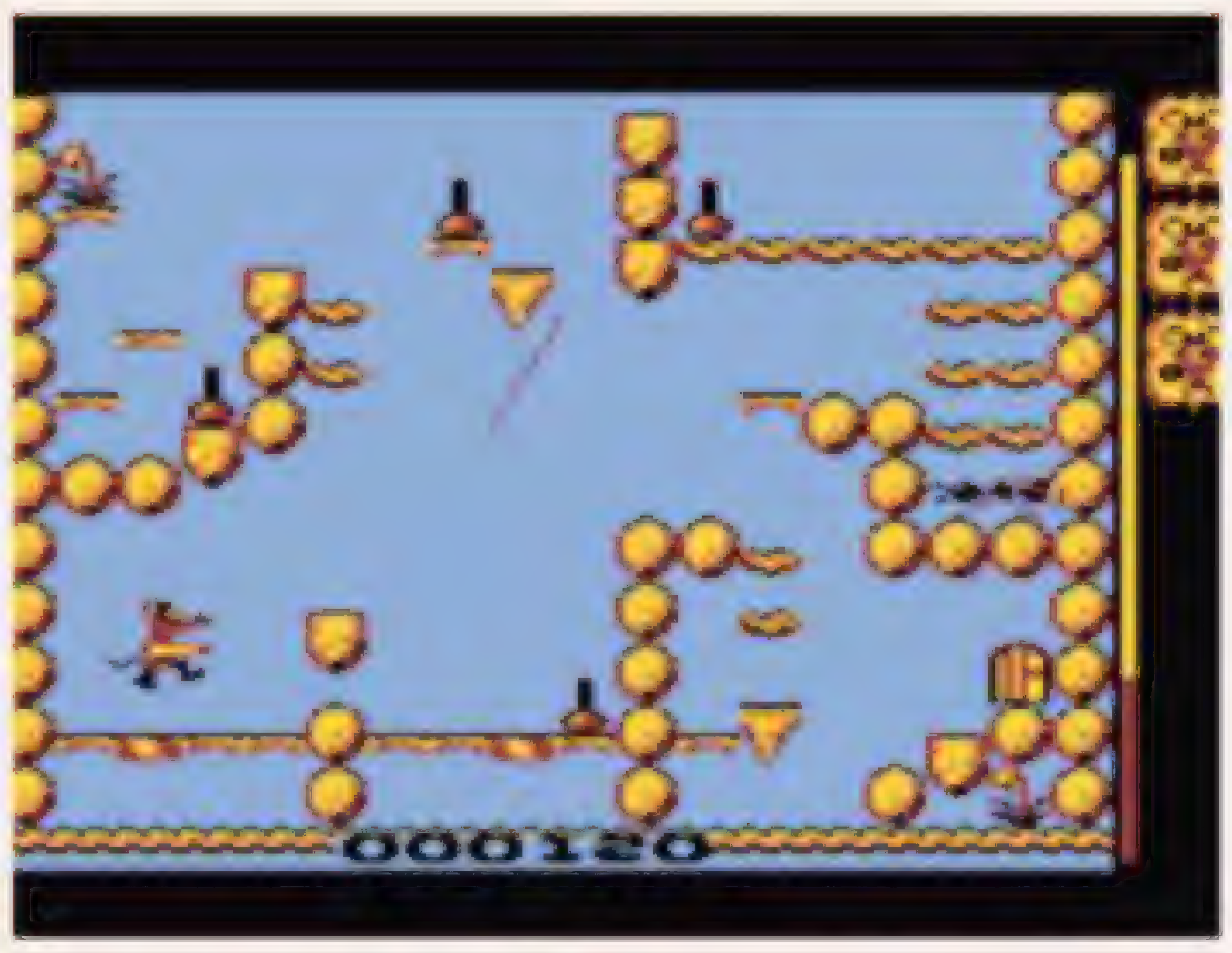
■ In this fine example of a game with a working-class hero, you play the role of an electrician manically trying to fix the wiring in a dilapidated building. Watch out for the alligators in the basement, though.



» HEARTACHE

■ DEVELOPER: ANDREW DICKINSON ■ YEAR: 1988

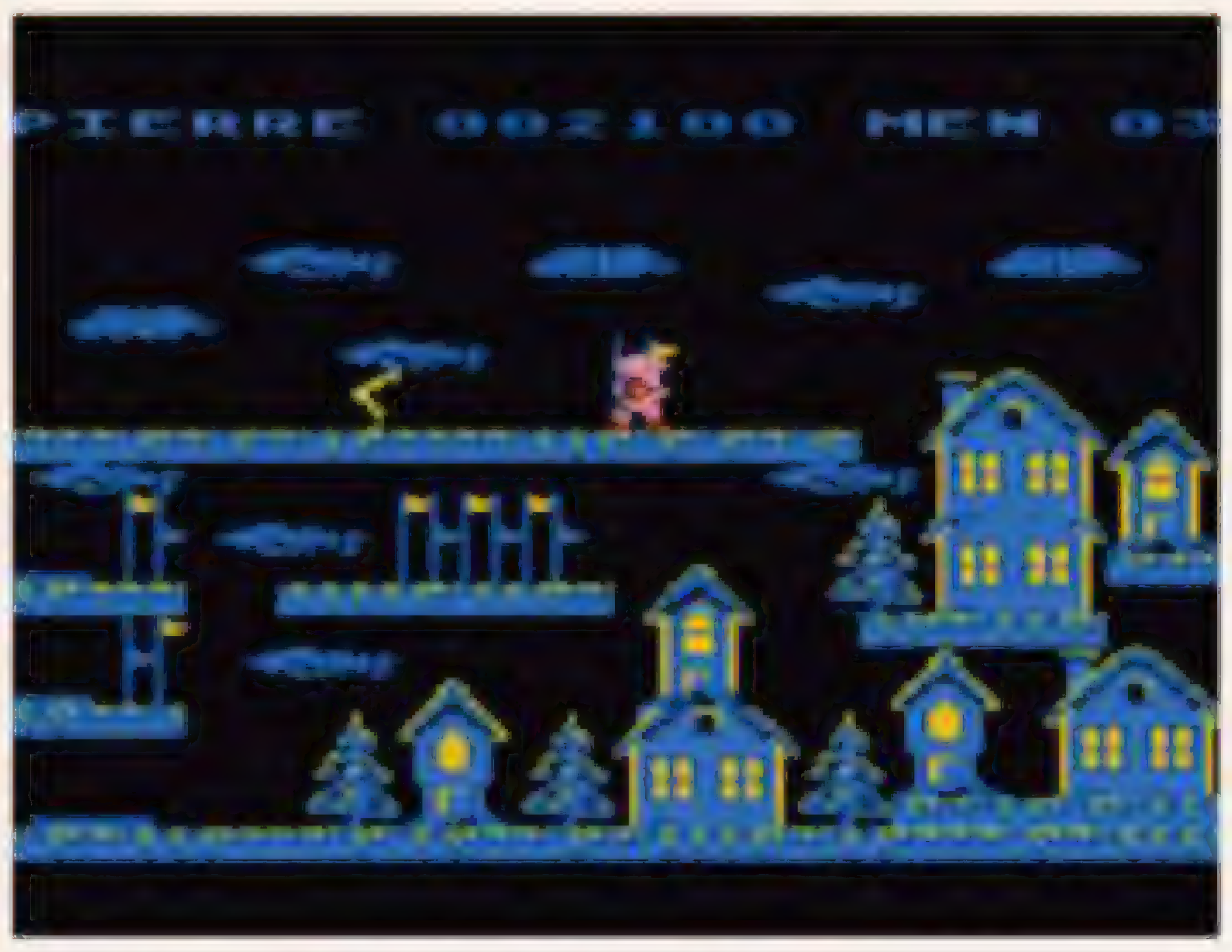
■ **It's rare to** come across a game that's truly original, but *Heartache* fits the bill. Interestingly, it's renamed *Heart Break* on the opening screen, but obviously nobody told the box artist. More importantly, however, its gameplay is genuinely unique. The game is set in the zero gravity of a deep-space laboratory, where your task is to make use of a gas cannon to blow a heart-shaped pod through a maze of corridors. If the pod touches the lab walls or an escaped experiment you lose a life, likewise if your air supply runs out. *Heartache* is worth playing for novelty value alone, but is also a pretty decent game.



» MOUSE TRAP

■ DEVELOPER: BRIAN JOBLING ■ YEAR: 1987

■ **As much of** a test of memory as skills and reactions, *Mouse Trap* sets you a series of single-screen platform-based puzzles that stop just short of being frustrating. The game's saving grace is the feeling of momentary triumph you get on reaching the exit of one of its 22 stages, before you see the fresh level you've reached and regain your sense of dread. The object is to get Marvin Mouse from one precarious ledge to the next and across chasms on floating platforms, while avoiding terrors like dragons, insects and witches. The graphics are basic and gameplay unforgiving, but once you start playing *Mouse Trap* you can't stop.



» POLAR PIERRE

■ DEVELOPER: RON ROSEN ■ YEAR: 1986

■ **The Atari 8-bits** have their fair share of platformers, but *Polar Pierre* does things a little differently. For one thing, you clear each level by raising rows of flags rather than collecting objects, which sounds simple but it's easy to miss flags. Of course, you seldom notice until you're halfway across the screen, meaning you've to backtrack to raise them. The other main difference is that the game has a two-player versus mode, which results in a hilarious free-for-all as you try to raise your flags before your competitor. Some nice visual effects, such as deadly lightning illuminating the screen, complement the frantic gameplay.

NIGHTMARES

■ DEVELOPER: DUNCAN STUART ■ YEAR: 1987

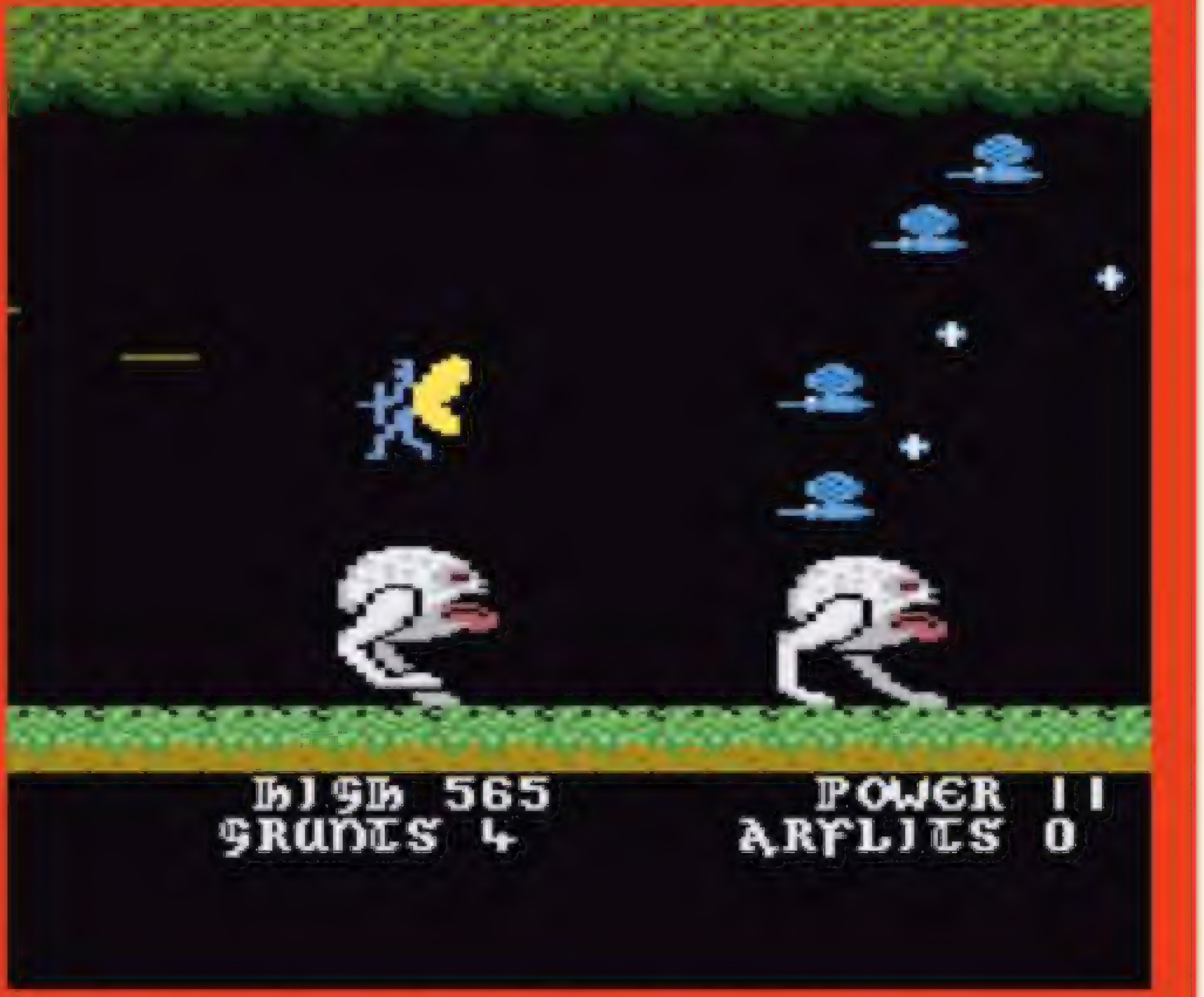
■ Though initially refused distribution before it had even been completed, this challenging and original shoot-'em-up did ultimately make it to shop shelves, allowing gamers to decide for themselves if it warranted its controversial reputation. Their answer was a resounding 'No', and soon after, attention shifted to admiring the game's huge detailed opponents and its frantic otherworldly firefights.

You have to wonder what on earth about the game gave distributors the jitters back in the Eighties. You play a nameless Faerie, charged with dispatching insects called Airflits while fighting off a horde of well-defined, but hardly scary, monstrosities in a series of tough side-scrolling levels.

In keeping with the fantasy setting, the laser guns and bombs associated with most shooters are absent, instead replaced by a magic bow and arrow and a limited supply of lightning. The key to progress lies in the player fulfilling their quota of Airflits before searching for an exit leading to a further 14 supernatural stages.

The game's mechanics keep you on your toes by dividing your attention between flocks of Airflits, which fly blindly into you if not shot, and far bigger ground-based beasties, which actively target you and require multiple hits to destroy. Contact with either has a negative impact on your energy.

Nightmares does provide an uphill challenge right from the outset, but once you get up to speed there's much to admire in the fight offered by your adversaries as you battle through the game's graphically varied stages.



■ [Atari 8-bit] Targeting a flock of Airflits while trying to avoid two larger ground-based monstrosities.

» NUCLEAR NICK

■ DEVELOPER: RON ROSEN ■ YEAR: 1986

■ In this platformer where you collect objects while avoiding opponents, you can temporarily turn the tables by obtaining an energiser, like in *Pac-Man*. This works well.

» KNICKER-BOCKERS

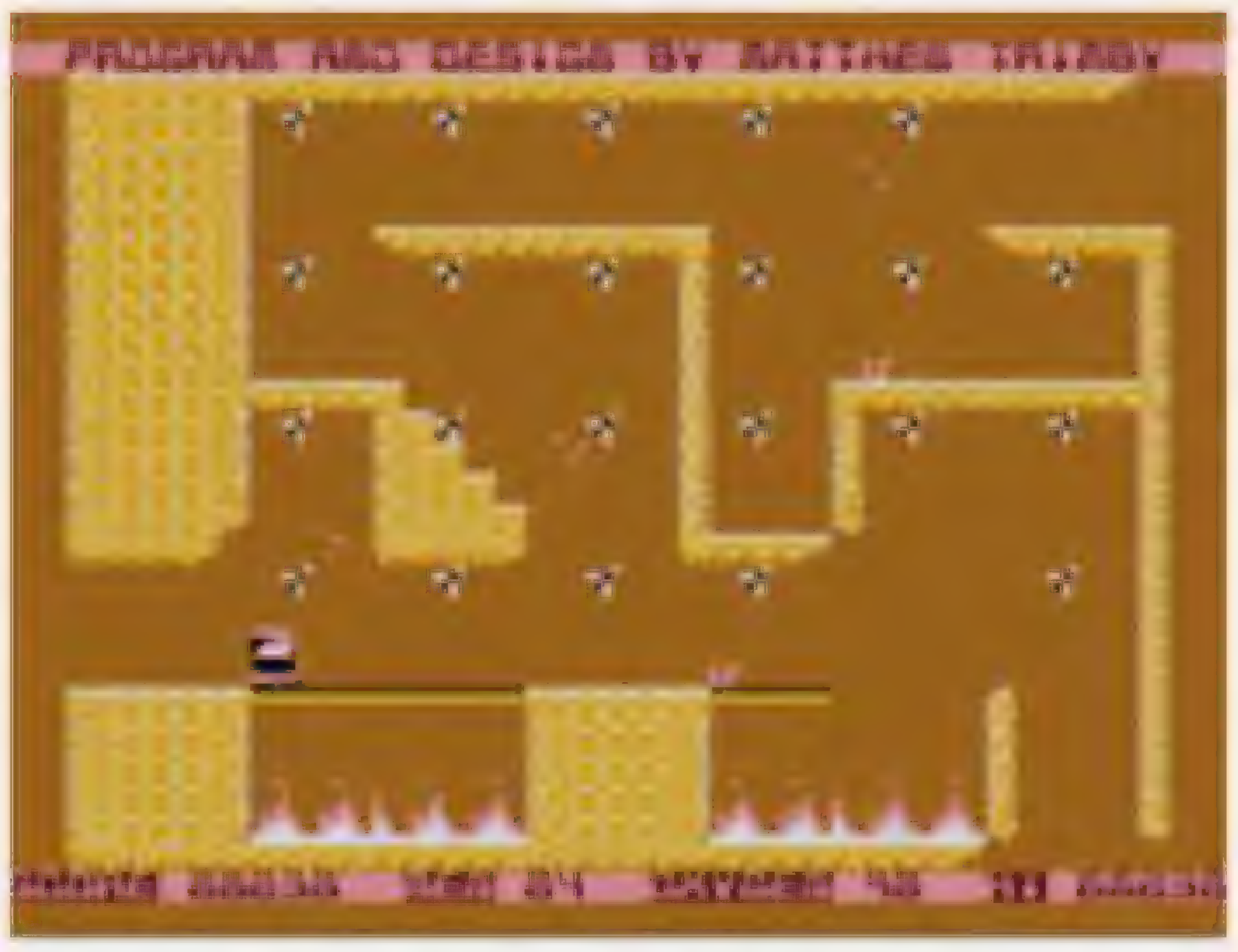
■ DEVELOPER: KIRK CHANEY ■ YEAR: 1988

■ Your maddeningly addictive task is to close doors to make boxes while avoiding opponents. Beware: this seemingly cute game may become your new obsession.

» ENIGMATIX!

■ DEVELOPER: STEVEN A FIRTH ■ YEAR: 1993

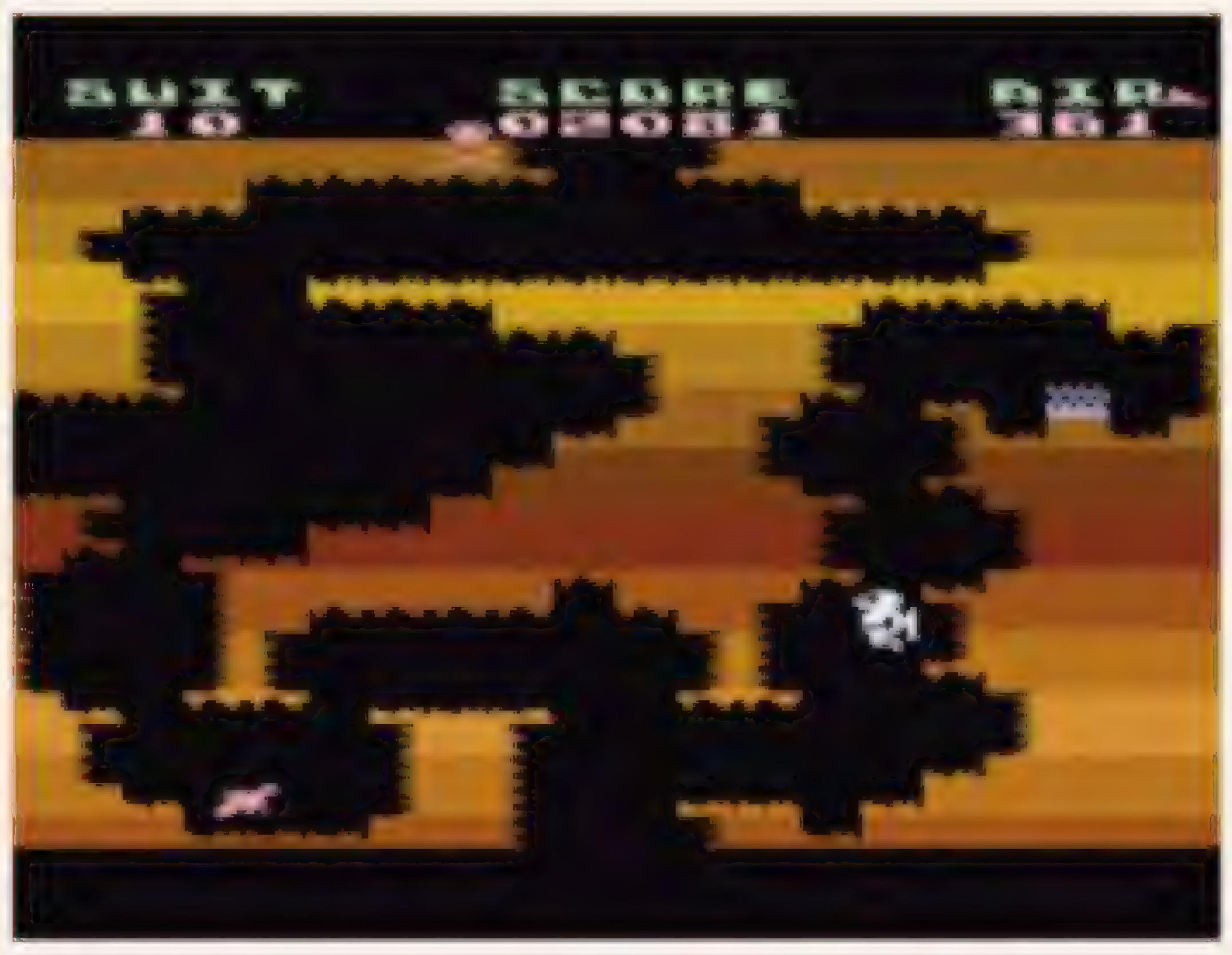
■ You bounce a ball from platform to platform to reach an exit – made trickier by platforms dissolving and reversing your controls. It's against the clock, too.



» CRYSTAL RAIDER

■ DEVELOPER: MATTHEW TRIMBY ■ YEAR: 1986

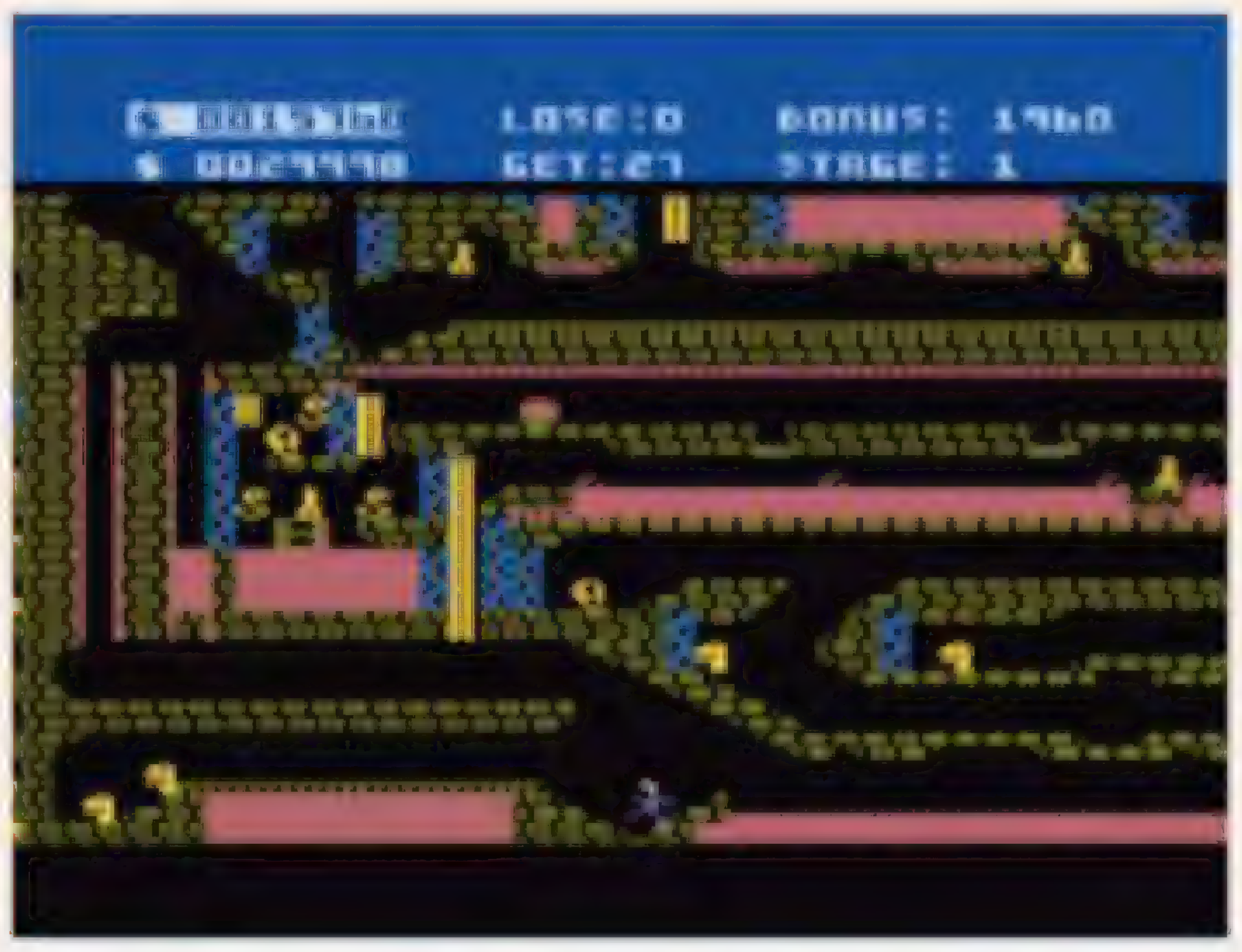
■ **You could describe** *Crystal Raider* as a tribute to *Bomb Jack*, but it's far from a straight copy. Your character's jumping certainly mirrors Jack's, and you have to collect items on each screen while avoiding dangers, but *Crystal Raider* is actually a very different game to its arcade counterpart. The main difference is that *Crystal Raider* is non-linear: you can leave rooms from various exits, and you can do so without collecting all the objects in a room. It also has additional elements, such as bridges floating over lava. Essentially, the game is more cerebral than the thick and fast fun provided by the Tehkan coin-op classic that inspired it.



» ROCKET REPAIRMAN

■ DEVELOPER: JOHN GUY ■ YEAR: 1986

■ **Red Rat Software** was a stalwart supporter of the Atari home computers and while not all of its releases were stellar successes, it did publish quality efforts such as *Rocket Repairman*. The latter plays like that fairground game where you guide a metallic hoop around a twisted length of metal while trying not to let the two touch. The difference is that you're navigating a rocket-man around the tight confines of an underground mine looking for spaceship parts. Any contact with walls or mine inhabitants damages your spacesuit, and when you absorb 100 hit points or run out of air it's game over. The game's cartoon visuals nicely contrast this tense challenge.



» CAVERNS OF KHAFKA

■ DEVELOPER: ROBERT T BONIFACIO ■ YEAR: 1994

■ **Those who have** played the C64 *Caverns Of Khafka* might be slightly confused by the screenshot above. Well, simply put, the title released for the Atari 8-bits is a completely different game. While the Commodore version features big sprites and moves at a sedate and steady pace, its Atari counterpart sees a tiny main character zipping around a packed screen at a pace of knots. The scrolling caverns of the title belong to the Pharaoh Khafka and, as such, are stuffed full of treasure, but also elaborate traps and puzzles and appropriately themed deadly creatures. The Atari version's visuals may be functional, but they facilitate some frantic and absorbing puzzling.

GAMING LEGENDS

SHIGERU MIYAMOTO

We take a look back at the work of one of the most celebrated figures in videogames and attempt the impossible: to summarise Shigeru Miyamoto's achievements and importance in just a few pages

It's often said that the games industry suffers because it doesn't have its celebrities. No rockstar personalities making tabloid headlines, no superstars who can plug their latest project in the mainstream press. But perhaps it doesn't need them. In many ways, videogames are more like literature and their creators like novelists. To many who consume the best games, the people behind them are invisible and it's the entertainment itself that matters. The player and the game have a direct relationship, almost completely divorced from the context in which the game was made and who it was made by. The games speak for themselves. But that's not to say those games aren't made by some truly remarkable people. And few game creators, if any, are more worthy of remark than Shigeru Miyamoto.

About as far removed from the 'rockstar developer' cliché as it's possible to get, Miyamoto is a softly spoken and always professional member of the games industry. He doesn't mouth off on Twitter, rarely talks about his competitors during interviews and has a way of communicating that's equal parts friendly and thoughtful. A private family man, thrust into the games industry limelight because of his influential work, he remains something of a mystery. We know very little about Shigeru Miyamoto the man, but his games tell us much about Shigeru Miyamoto the artist.

Like many game creators of his generation, Miyamoto didn't have the option of studying game design during his college years, and even computer science was very much in its infancy during his youth. Instead, his training was in industrial arts and his ambition was to become a comic book artist. His skill for game design, then, came not from formal training but from something in his personality because, for Miyamoto, life itself is a game. We've all heard how Miyamoto's childhood spent exploring the countryside and caves of Kyoto inspired him to create the grand adventure of *The Legend Of Zelda* and even quite recently the 61-year-old has been seen walking around the Nintendo offices with a tape measure,

> "HIS CHILDHOOD SPENT EXPLORING THE COUNTRYSIDE AND CAVES OF KYOTO INSPIRED HIM TO CREATE THE LEGEND OF ZELDA"

Max
Buddy
Daisy
Journal
Supplies
Go Out

■ [N64] With *Super Mario 64*, Miyamoto and his team perfected platforming in 3D. Two years later they did the same for adventure games with *Ocarina Of Time*.

■ [NES] Miyamoto's love of play and exploration manifested in *The Legend Of Zelda* and remained at the core of the series for over 25 years.

■ In *Pikmin*, Miyamoto achieved what many thought impossible, he made the real-time strategy genre playful, colourful and happy.

amusing himself by trying to guess the length of everyday objects.

This playful spirit transplants perfectly into Shigeru Miyamoto's defining title: *Super Mario Bros*. On a surface level, this platform game is important because it practically established the rules of the genre and catapulted an early Nintendo star into such fame that he became the Mickey Mouse of videogames: not just a mascot for Nintendo but an ambassador for the medium itself. But *Super Mario Bros* remains an eminently playable game not because it defined the rules but because it also dared to subvert them within the same game.

Super Mario Bros encouraged and rewarded playfulness and experimentation more than any other game of its time, and World 1-2 is a great testament to this. Filled with secrets, from coin blocks that appear out of nowhere, to that iconic shortcut across the top part of the screen seemingly reserved only for score data, *Super Mario Bros* keyed into the interactive nature of games to make you feel so in control that you could even break the rules.

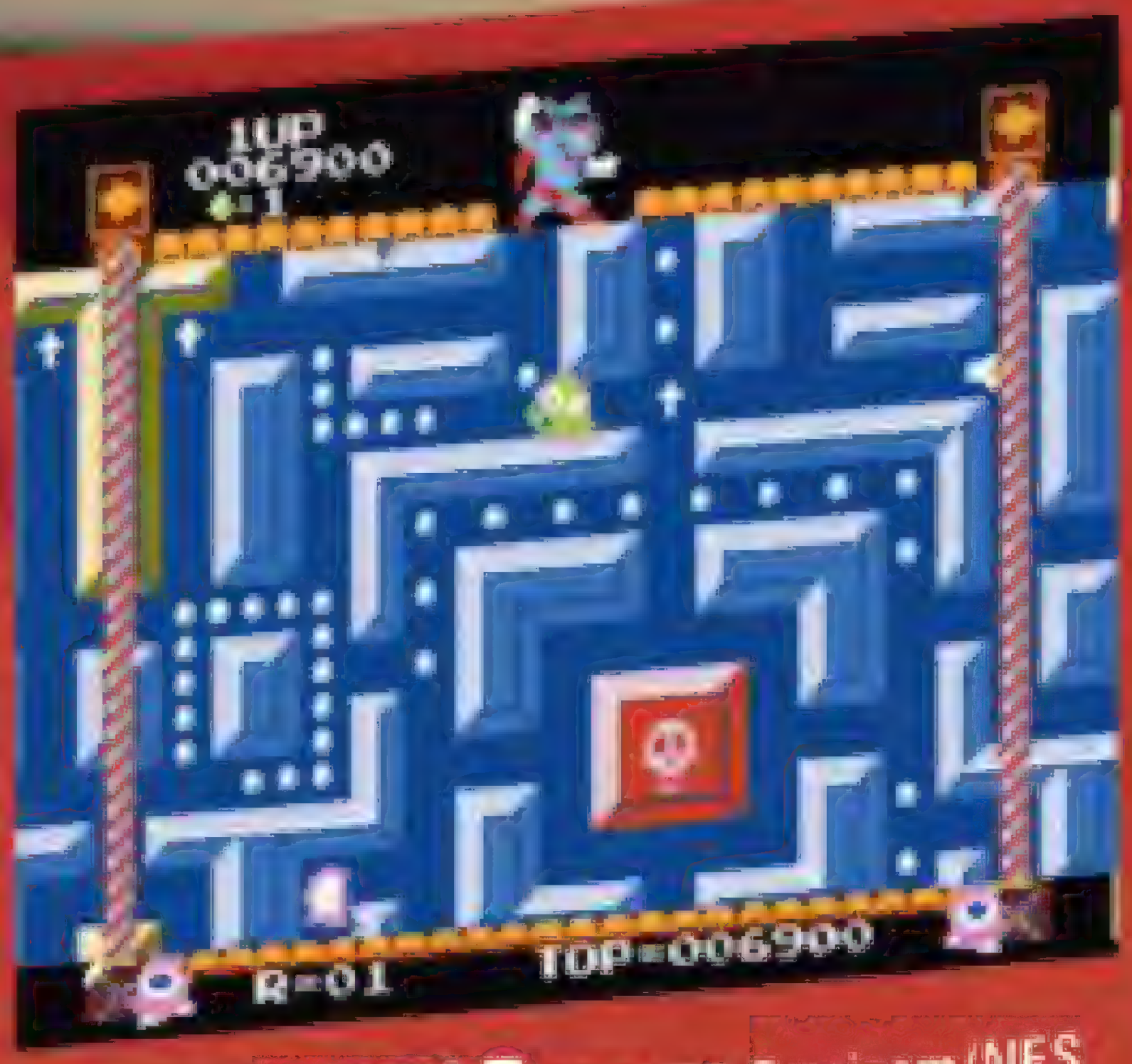
Mario wasn't a one-off either. *The Legend Of Zelda* similarly rewarded imaginative, creative, inquisitive play, allowing players to discover all kinds of secrets if they were prepared to try new things like burning a bush or pushing a gravestone. This is the essence of Miyamoto's input and has come to define Nintendo gaming for three decades. How many of us have stood in a seemingly innocuous part of a new *Mario* or *Zelda* game and thought "I wonder what will happen if…" only to try it and discover that not only was such an idea possible but the designers had anticipated the experiment and left a secret in reward for such bold thinking? That's the Nintendo difference, and it largely comes from Miyamoto.

Of course, not all of Nintendo's achievements can be credited to one man. The company had existed a good 90 years before Miyamoto joined its ranks and its success came from a wide number of individuals, not least the ruthless business acumen of the Yamauchi family, the innovative hardware designs of Gunpei Yokoi, the pioneering spirit of Nintendo Of America's NES launch team or, more recently, the guiding hand of the creatively-minded Satoru Iwata. But throughout Nintendo's videogame career, Miyamoto has been a constant source of fortune.

Though Nintendo joined the videogame business in the mid-Seventies, its earliest arcade games ranged from middling success to absolute disaster, culminating in *Radar Scope*, a primitive *Space Invaders* derivative that did okay in Japan but tanked in America when it launched there in 1980, appearing outdated and unimaginative compared to its contemporaries. Facing the prospect of a massive financial disaster, Nintendo Of America appealed to the Japanese office to put a new game inside the *Radar Scope* cabinets, and a fresh-faced Miyamoto, who had previously designed the art for 1979's Sheriff, was charged with the task. Working under Gunpei Yokoi, Miyamoto created

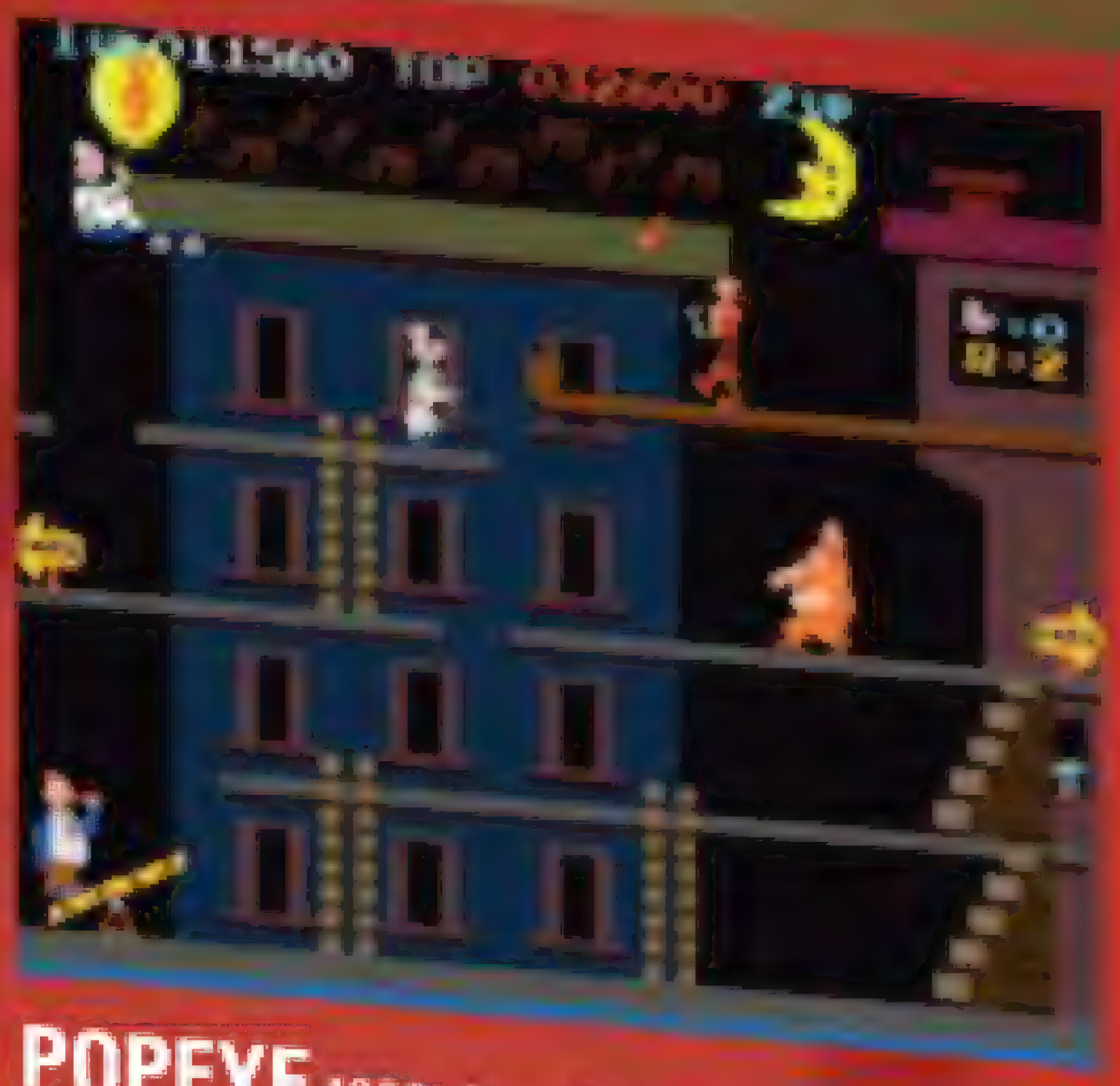
ALSO BY MIYAMOTO

Not everything Miyamoto touches turns to gold. Here are some of his less successful creations…



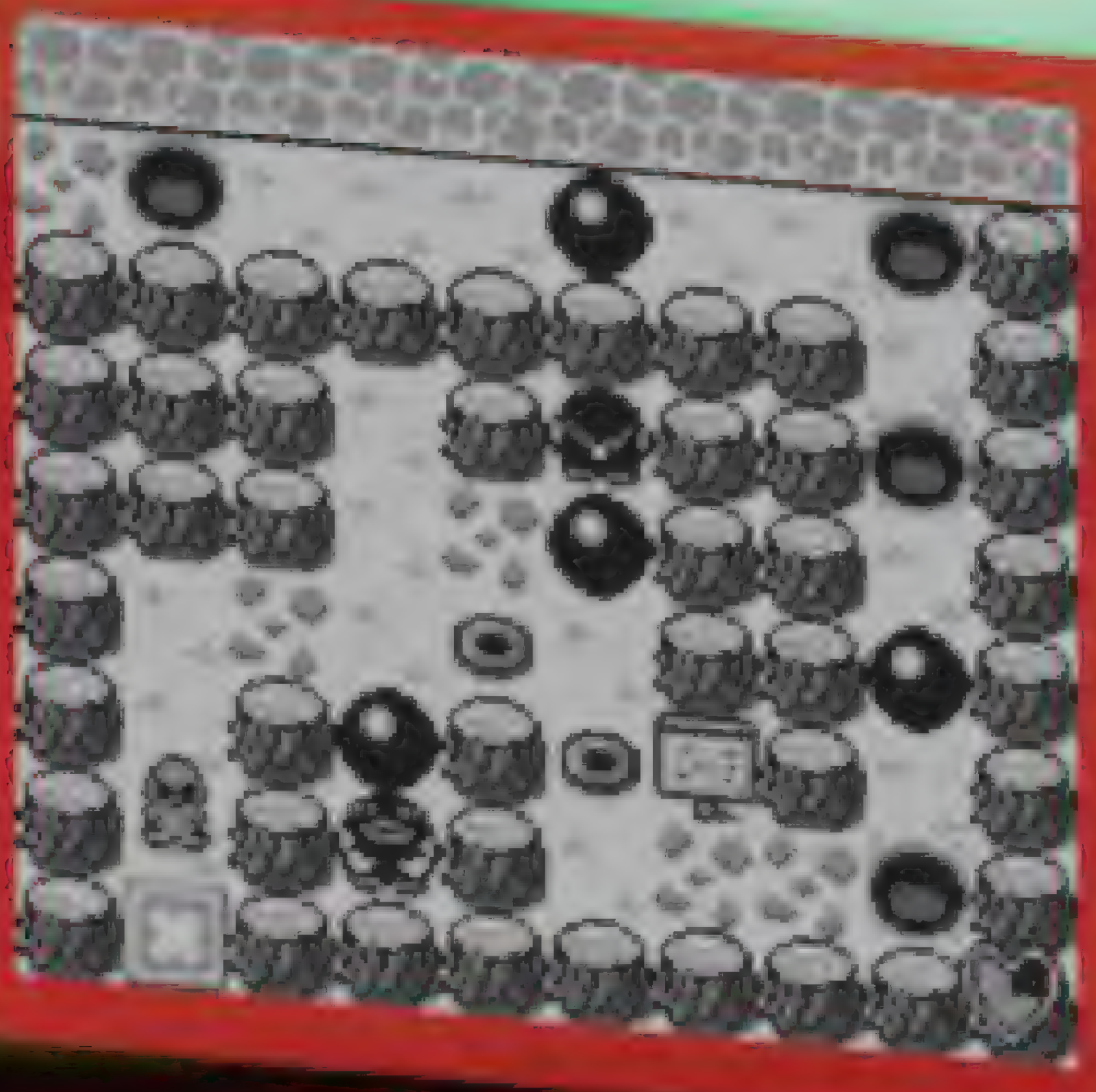
DEVIL WORLD 1984/87, Famicom/NES

■ Inspired by his love of *Pac-Man*, Miyamoto made his own maze game in 1984 but *Devil World* was a flop for a couple of reasons. Featuring a maze whose boundaries moved in accordance with a dancing devil, as well as goals that changed with each stage, it was a bit tough for players to get their heads around. Plus, the religious imagery in the game meant that *Devil World* wasn't released in the US.



POPEYE 1982, Arcade

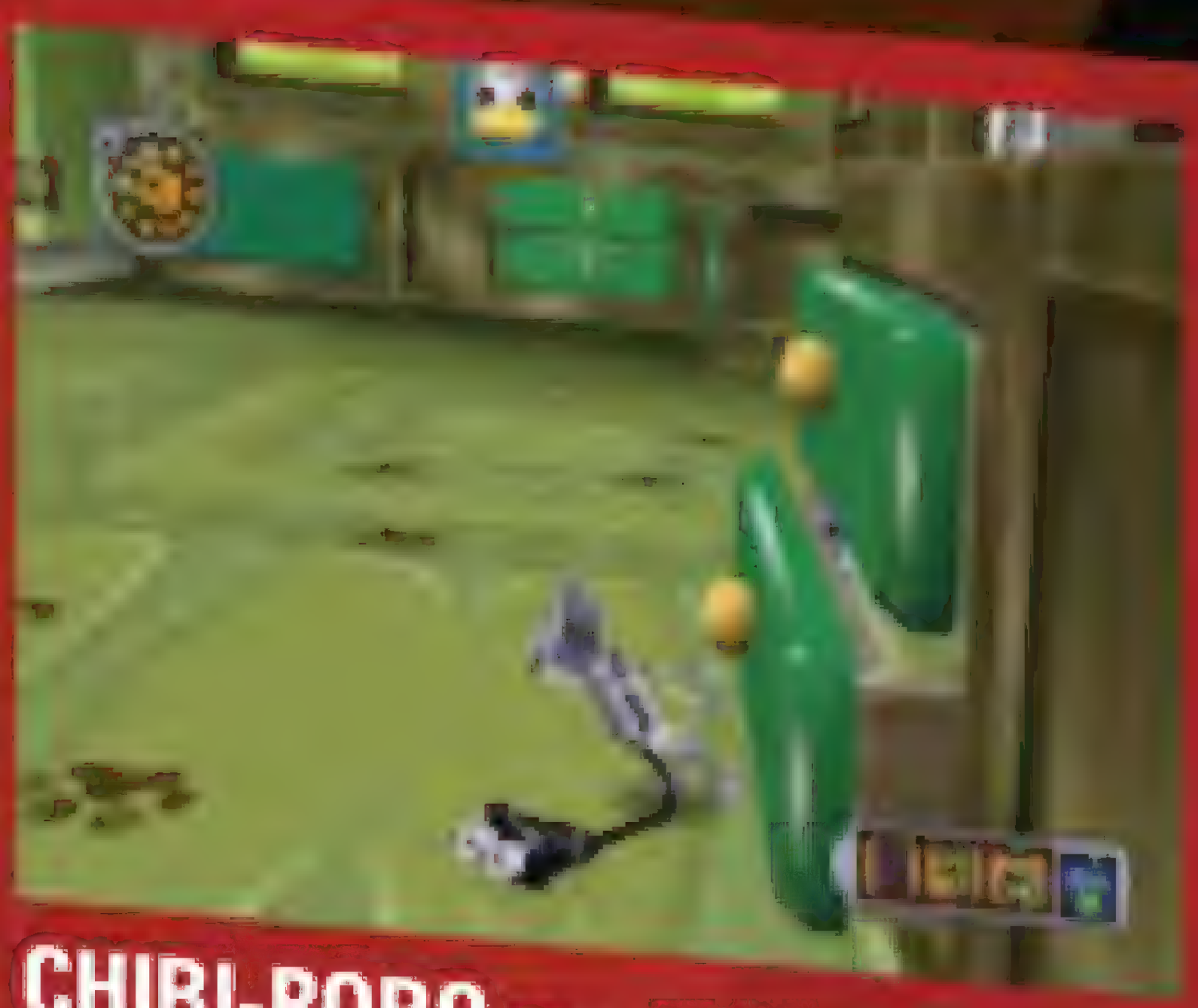
■ When Miyamoto was first asked to turn *Radar Scope* into something that would sell in America, he wanted to create a game based on one of his favourite cartoons, *Popeye*. Nintendo didn't have the rights to the characters but Miyamoto eventually got his wish in a rare licensed game under Nintendo. Like *Donkey Kong*, *Popeye* is notable for the unique challenges posed by each stage.



MOLE MANIA

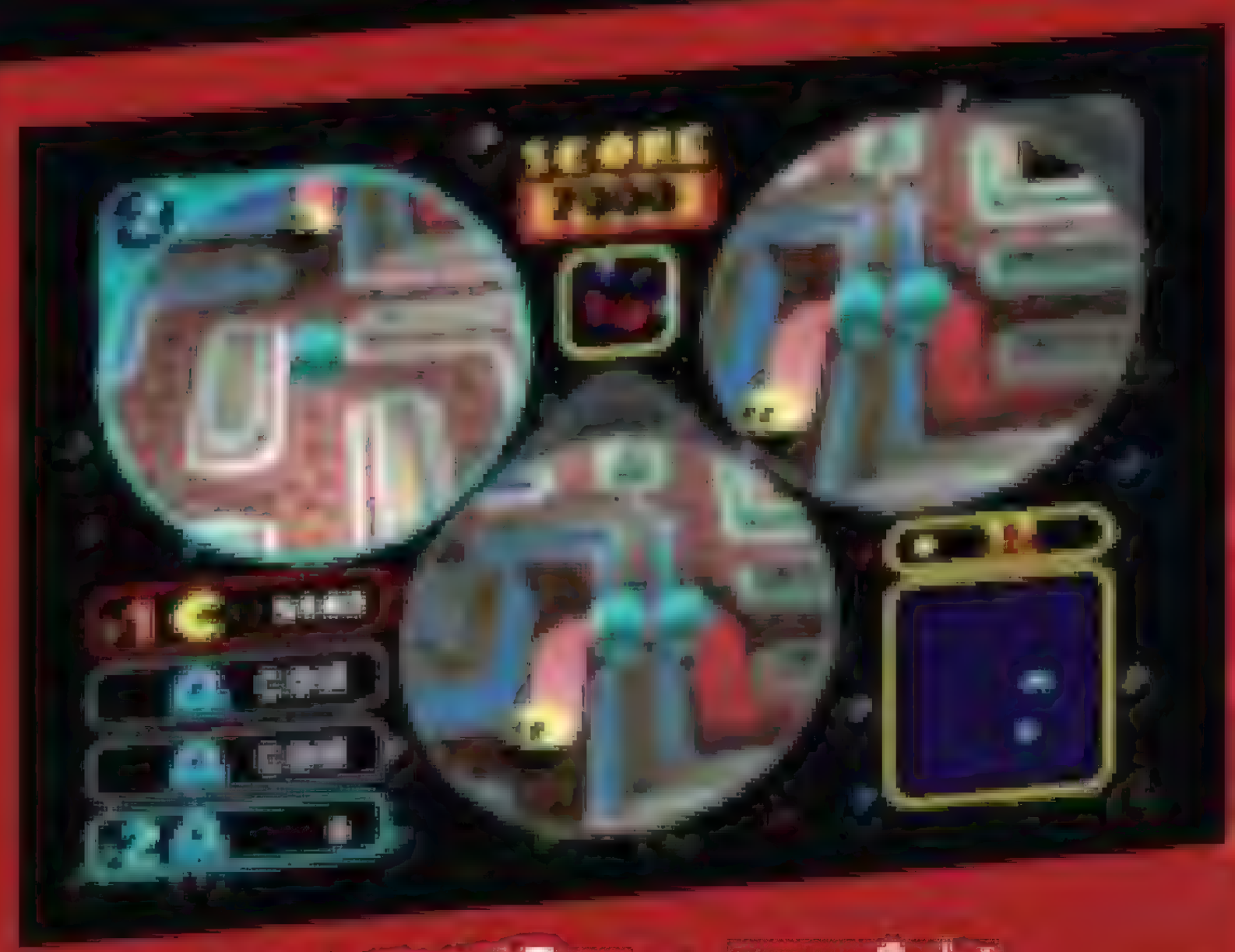
1996, Game Boy

■ In 1996 Nintendo released a Game Boy game about cute little creatures which would reverse the fortunes of the portable system and change the company's future. That game wasn't *Mole Mania*. More of a footnote in Nintendo history, this obscure release is nevertheless a great puzzle game, recently given a new lease of life in its 3DS Virtual Console re-release.



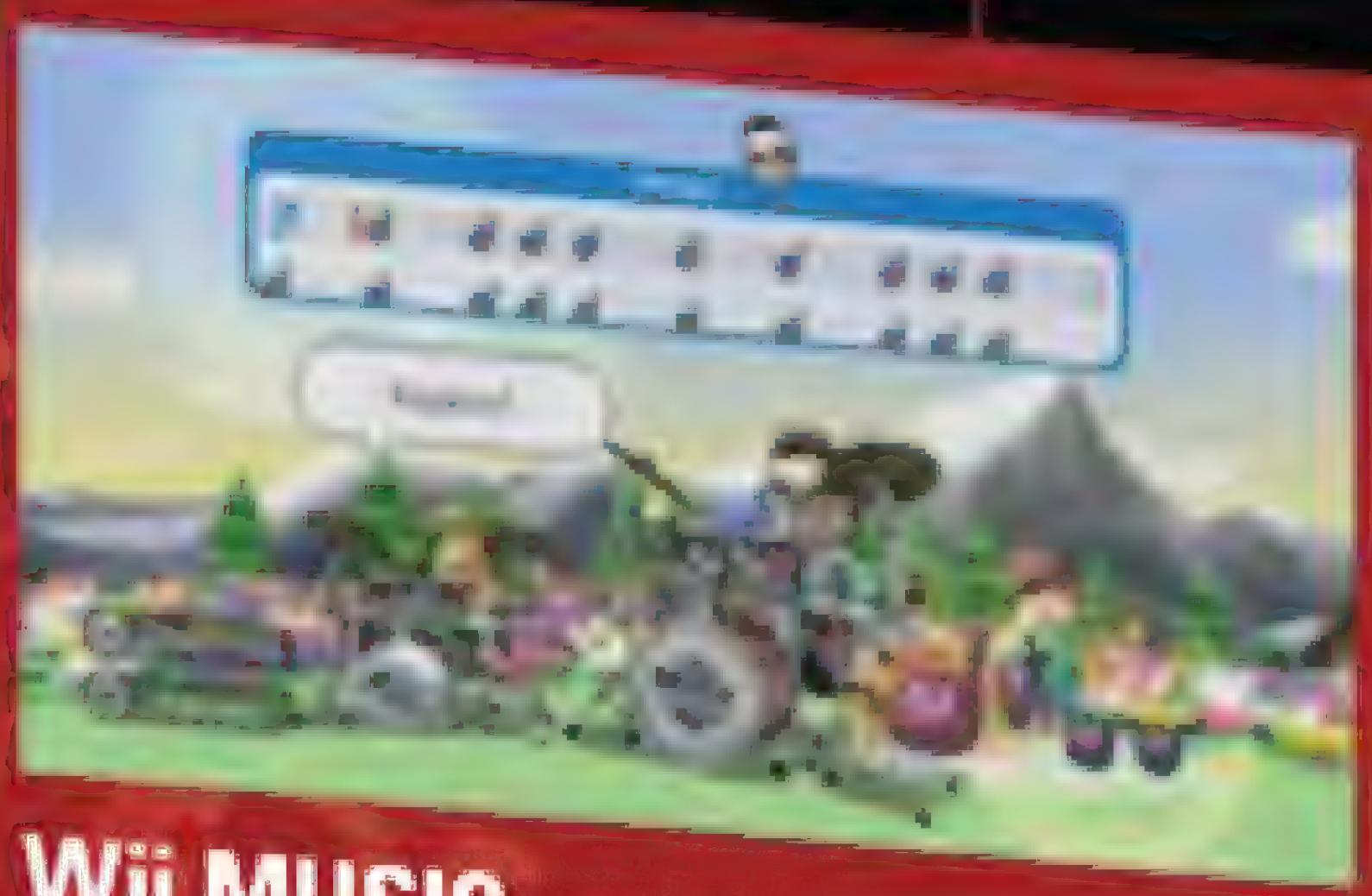
CHIBI-ROBO 2005, GameCube

■ Originally due to be published by Bandai as a point-and-click adventure, *Chibi-Robo* underwent huge changes when the game was acquired by Nintendo. Miyamoto's influence helped reinvent the game as a *Zelda*-like action-adventure. The overhaul delayed the release until late in the GameCube's life but *Chibi-Robo* was so good it became big enough to support two DS sequels and a Wii remake.



PAC-MAN VS 2003, GameCube

■ This official collaboration turned the original game into a four-player affair, with one person controlling Pac-Man on a GBA screen and three others taking control of ghosts on the TV. Though hard to find on GameCube (it was only given away with select Namco games) it got a second chance on DS's *Namco Museum* and is soon to be reinvented as a Luigi-themed mini-game in Wii U's *Nintendo Land*.



Wii MUSIC 2008, Wii

■ *Wii Music* stood apart from the rhythm-action craze of its generation with more free-form gameplay that tried to teach players the principles of music playing and encourage creative play-styles. It achieved those aims but with only 2.65 million copies sold, it is considered a failure in comparison, and Miyamoto's ambition to create an enhanced sequel remains unfulfilled so far.

WORDS OF WISDOM

Miyamoto's five greatest interview quotes

"Videogames are bad for you? That's what they said about rock and roll"

"Right now, I have to ask myself what kind of game I would be willing to work on right before my death"

"I could make Halo. It's not that I couldn't design that game. I just choose not to"

"I think that inside every adult is the heart of a child. We just gradually convince ourselves that we have to act more like adults"

"A delayed game is eventually good, a bad game is forever bad"

■ [Wii] Miyamoto's ability to make even the simplest of games fun has been invaluable in Nintendo's casual game revolution.

MARIO
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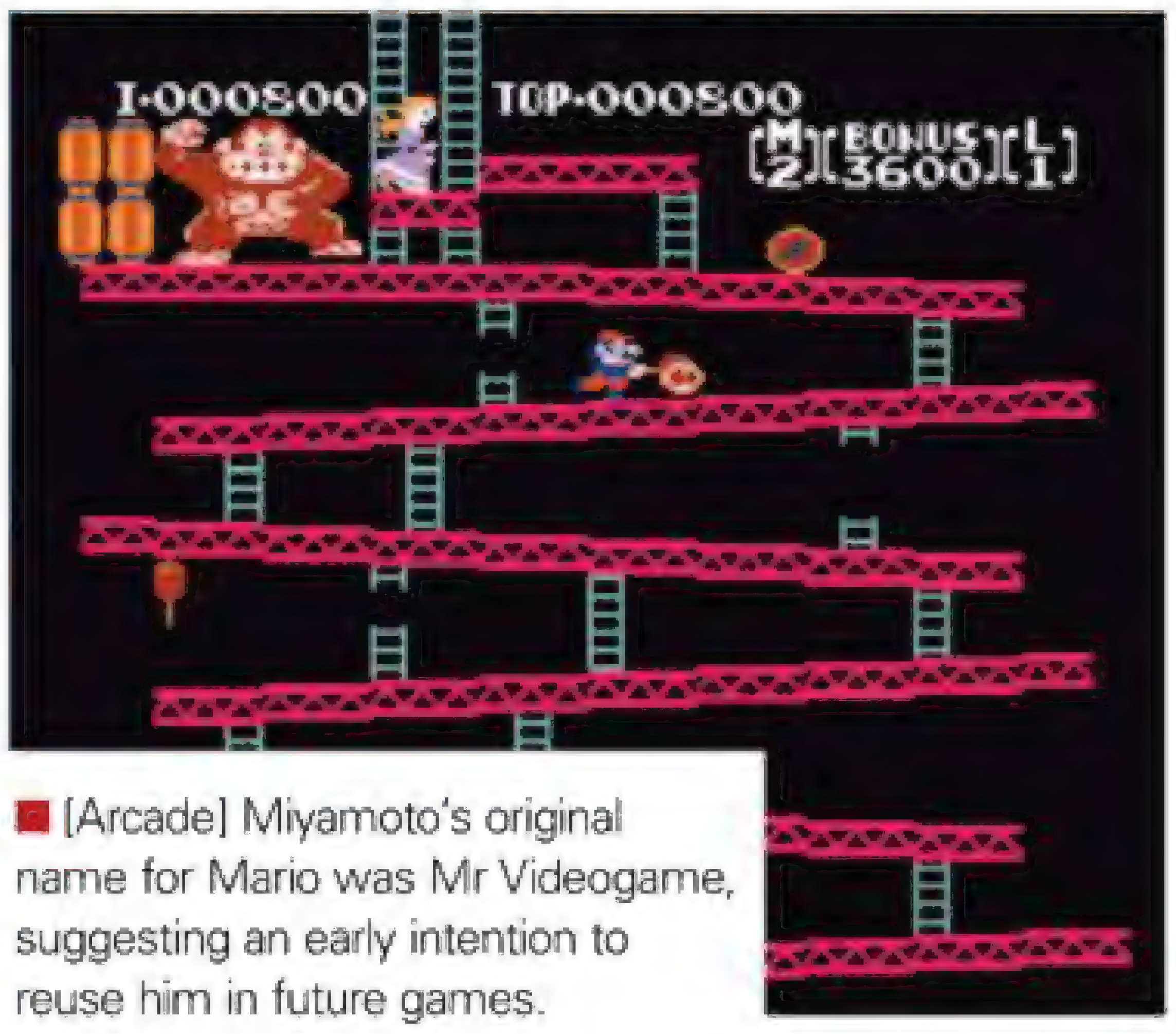
×11
WORLD
1-1
TIME
323



■ [Arcade] Miyamoto's original name for Mario was Mr Videogame, suggesting an early intention to reuse him in future games.

Donkey Kong, a game that played so well it continues to be played by high score chasers to this day, and reversed Nintendo's fortunes. Launched the year after Yokoi's Game & Watch brand, *Donkey Kong* helped put Nintendo on the map and keep it there.

Much can be and has been written about the importance of *Donkey Kong*'s gameplay, particularly of its importance to the invention of the platform game, but it was also crucial to the evolution of the medium because of its use of character. Miyamoto's background in comic art, as well as his love of the *Popeye* cartoon (which he was planning to adapt into a game at the time) led him to think about the presentation of *Donkey Kong* as much as its gameplay, believing quite rightly that the depicted love triangle of the game would make it easier to identify with than the soulless, faceless subject matter of *Radar Scope*. A year after Namco's *Pac-Man*, it tapped into a key evolution in videogames: the creation of recognisable characters who could attract players to games not only once, but multiple times as they reappeared in sequels and other games.

In *Donkey Kong* and *Mario*, Nintendo harnessed the compelling power of character design and continued to create new characters for many years to come, from Link to Samus Aran, Fox McCloud and many more. You only need look at the incredible roster of characters in *Super Smash Bros* compared to, say, the underwhelming non-entities in Sony's *PlayStation All-Stars* to see how instrumental characters have been to Nintendo's success. Miyamoto, of course, has played a crucial role in this, right up to the modern age with the advent of the Mii – a way to turn players themselves into videogame characters through a system that Miyamoto worked on for decades before realisation.

In recent years, Miyamoto's personal contributions to gaming have slowed. Now partly a spokesperson for Nintendo as well as a mentor to the next generation of the company's creators, he has less time to create games of his own. But he does occasionally take on a pet project and is still doing what he does best, turning his personal playfulness into gaming. *Pikmin* came from the then 49-year-old's passion for gardening, while *Nintendogs* was inspired by his family pet. As the designer enters his sixties, and with no intention to retire, we can only imagine what sort of games he may be inspired to make in the future. But even if he walked away from videogames today, his chapter in the history books would take up more space than virtually anybody else's. Shigeru Miyamoto didn't invent videogames but he defined them and it's a rare modern videogame that can't trace its roots back to *Mario* and *Zelda*.

MIYAMOTO'S ACHIEVEMENTS

HE SAVED NINTENDO'S SKIN

■ When Miyamoto created *Donkey Kong* he didn't just find a use for some leftover arcade cabinets, he created a cultural icon and placed Nintendo at the centre of the burgeoning videogames revolution. *Donkey Kong* is Nintendo's big bang; responsible for all of the life and achievements that have come since.

HE DEFINED VIDEOGAMES

■ With *Super Mario Bros* and *The Legend Of Zelda*, Miyamoto created two equally iconic templates for game design. Their influence was immediate and can be felt in every character-based game that has come since. Even games like *Portal* or *Grand Theft Auto* owe an immeasurable debt to Miyamoto's vision.

HE MADE 3D WORK

■ 3D gaming existed long before the Nintendo 64 but it was ugly, clumsy and primitive. By designing Super Mario 64 in tandem with the N64's analogue controller, Miyamoto achieved a perfect synergy of software and hardware that wrote the rules for 3D gaming in much the same way that *Super Mario Bros* did for 2D.

HE BROUGHT GAMING TO THE MASSES

■ With Reggie Fils-Aime and Satoru Iwata, he built upon the foundations of old masters Gunpei Yokoi and Hiroshi Yamauchi. The team's introduction of DS in 2004 widened the audience for videogames, led to an explosion of mainstream popularity in *Wii Sports*, and built an audience that would embrace casual gaming on iPhone.

HE PASSED ON HIS WISDOM

■ While many creators retire or move on to start their own companies, Miyamoto has remained with Nintendo and spent the latter part of his career passing on his knowledge and experience to younger creators, even though the *Mario* and *Zelda* series are now directed and produced by others.

PROJECT GOTHAM RACING
GEOMETRY WARS
FUR FIGHTERS
WIZ N' LIZ
0
0
WIZ-00000000
MIS-00000000
60
30 Minutes per side

FROM THE ARCHIVES

RETRO GAMER DIGS UP THE FILES OF THE CLASSIC COMPANIES OF OLD

Bizarre Creations

Garnering a reputation for being a racing game specialist, Bizarre Creations released a variety of titles before shutting its doors in 2011. We speak to former employees about what made the games company so memorable

Before the name Bizarre Creations came about, Martyn Chudley's small team of five initially went under the moniker of 'Raising Hell' in 1988. In 1990, the team released an impressive platformer with shooting elements called *The Killing Game Show* on the Amiga, with the game later ported to Atari ST and Sega Mega Drive. Taking control of a robot equipped with two cannons on each side with the aim to reach the end of the level before the rising water level wipes you out, *The Killing Game Show* was an enjoyable but punishing title. It also featured some unique gameplay ideas, with the ability to fast forward a level and replay certain areas, a gameplay twist that has become far more common in today's modern games.

Unfortunately, Sega disapproved of the hellish branding for a development company so a new name had to be found. While you will see that the Amiga and Atari ST versions are credited to Raising Hell Software, the Sega Mega Drive release attributes the game to Bizarre Creations. A submission document penned by Martyn Chudley featured the name 'Weird Concepts'. A member of staff used a thesaurus on both words and came up with 'Bizarre Creations', which gave them the identity that they were looking for.

In 1993, Martyn Chudley and Mike Waterworth designed cutesy platformer *Wiz 'n' Liz*, which would debut on the Sega Mega Drive before being converted for the Amiga. *Wiz 'n' Liz* sees your wizard having to collect ingredients and partake in a variety of mini-games to rescue the 'wabbits' that have been viciously abducted. It's a unique platformer that doesn't feature any enemies yet the formula works really well. The game, while short, is thoroughly enjoyable and full of charm and also includes a superb two-player mode.

In 1994, the developer would take on the name Bizarre Creations permanently. With a relationship already developed with Psygnosis, the team was offered a contract to develop Formula One titles upon the publisher seeing their concept demo *Slaughter*. Mark Craig joined Bizarre Creations when the team was fairly small and was there up until the studio's closure in 2011.

"I was initially hired as a PC programmer but fairly quickly moved up to a senior and then lead programmer, he reveals' "I also had quite a large role in recruitment and interviewed most of the programmers we hired. I started working there when Bizarre was about 12 people so I initially worked with all the founding members. Throughout the course of my career there I worked with just about everyone!"

☐ BY THE NUMBERS

007 James Bond title *Bloodstone* was developed by Bizarre Creations

3 Standalone games in the *Geometry Wars* series

4 Games in the *Project Gotham Racing* series

5 Music tracks available as DLC for *Boom Boom Rocket*

9 Amount of consoles Bizarre Creations developed for

17 Licenced tracks featured in *Formula 1 '97*

10 Music tracks featured in *Boom Boom Rocket*

4 Cities recreated in Project Gotham Racing (San Francisco, London, Tokyo, New York)

20 Maximum number of players that could compete online in *Blur*

130 Amount of vehicles found in *Project Gotham Racing 4*

800 Cost of Microsoft points to purchase *Geometry Wars: Retro Evolved 2*

2000 The year *MSR* was released on Dreamcast

2007 The year Activision acquired Bizarre Creations

PSSR
TIME
×3
BONUS

☐ BLOODSTONE

☐ INSTANT EXPERT

Before becoming Bizarre Creations, the team were known as 'Raising Hell' and released two titles *The Killing Game Show* and *Wiz And Liz*

Bizarre Creations was founded by Martyn Chudley in 1994, with only five people at the company in the beginning

The team's impressive Formula One title caught the attention of Sega's Kats Sato which led to them developing *Metropolis Street Racer* for the Dreamcast

Bizarre Creations developed a reputation as racing game specialists, having been responsible for *Formula One*, *Metropolis Street Racer* and the *Project Gotham Racing* series

Project Gotham Racing on Xbox was the spiritual successor to *Metropolis Street Racer*, incorporating the same innovative kudos system

***Geometry Wars: Retro** Evolved* was originally included as a mini-game in *Project Gotham Racing 2* before its popularity leading to it being developed as a full title for Xbox Live

Richard Jacques was responsible for the in-game radio soundtrack for *Metropolis Street Racer*

Bizarre Creations got to work with Psygnosis, Acclaim, Sony, Sega, Microsoft and Activision throughout its history

On 26 September 2007, the company was acquired by Activision

The company was closed in 2011 by publisher Activision

As a result of being one of the early members of the team, Mark got to work on licenced title *Formula One* on Sony PlayStation. "A lot of time was spent looking at how the game was presented on the TV coverage; the key was trying to make it look as familiar as possible to the players, he continues. "We were fortunate to have a crazy genius as our main technical programmer and he managed to make one of the most powerful 3D engines that was ever written for the PS1. The artists all had detailed plans of the vehicles & tracks. They also had hours of races recorded on VHS tapes that they studied in great detail. I think they also went on a few research trips to see the tracks for themselves."

Asides from being visually impressive and true to the original sport, opposing drivers seemed to have their own personality on the racing tracks. "It was a long time ago but I seem to remember that the AI was based around splines generated by people playing the game," explains Mark Craig. "I remember that one of the biggest challenges was getting all the cars to go round the track without getting in the way of each other. There were also some personality settings for the drivers to give them slightly different behaviour."

Such research paid off, as the end result was a realistic and intelligent racing title that appealed to Formula One and racing game fans alike. The game's release in 1996 catapulted the game into the charts and resulted in being the best selling game in Europe for the year. Impressed by such results, work began on the follow up *F1 '97*. This included new features like an in-game cockpit view and racing additions including flags, changing weather conditions and potential car failure. Improved over its predecessor, *F1 '97* was once again a hit among critics and was a best selling title in the UK.

> **"The look of the game was intentionally left undecided until we had signed a publisher"**
>
> MATT CAVANAGH ON THE STYLE OF THE CLUB

For a time, the game was withdrawn from shops due to legality issues with FIA (Formula One's governing body). FIA was unhappy with the use of its logo upon the cover of the game and although the title was withdrawn from stores and the logo was removed, a court case was pursued. There was also an issue with the use of name and image of Williams driver Jacques Villeneuve which he had copyrighted, so this was then replaced with a silhouette image and the name "Williams numberone" was used instead (Driverone Williams appears within the game menu).

The Dreamcast Effect

Undeterred by such legal technicalities, Psygnosis was all intent on signing Bizarre Creations to develop a further five *Formula One* titles but the developer received a better offer from Sega. Sega had been impressed with the *Formula One* games and Kats Sato had been given the task of finding out who was behind them. At ECTS '97, he pulled out the power cable of the PlayStation running the game so he could see the start-up credits. After a meeting with Sega Europe's CEO, Kazutoshi Miyake, Bizarre Creations accepted the offer to create a flagship racing title for the Sega Dreamcast.

Lee Carter, one of the artists who worked on *Metropolis Street Racer*, remembers joining the company well. "I was hugely into my old Amiga computer and Deluxe Paint 4 while at school, but at age sixteen I went to art college and then ▶

2
0
MAGIC
IZ-
×3
BONUS
TIME-1:

» [Mega Drive] *Wiz 'n' Liz* was an excellent game, delivering fast-paced action and cute visuals.

0/9=BABIES!
ROOFUS
100
SHELLS

» [Playstation 2] *Viggo's Revenge* boasted a cel-shaded look and packed in content not found in the Dreamcast game.

» [Dreamcast] Thousands of photographs were taken to re-create the cities in *Metropolis Street Racer* to great effect.

university. Seven years later after doing illustrations for various magazines and RPG companies, I began to see jobs for artists. I hadn't had any computer training and in fact, I was pretty much a traditional artist in terms of materials so I thought all this computer technical stuff was well beyond my capabilities. After my initial phone call to a friend who worked at Sony Liverpool, which was in the old Psygnosis building, I was told that they didn't have any jobs. However, a smaller company just across the road may have had something there. 20 minutes later one of Bizarre Creations' artists phoned me up and set up an interview for me. Basically I was told as I didn't know any 3D but had strong drawing skills that I would be hired and put in a cupboard till I was needed. I was the 21st employee, so it was all still quite cosy at the time."

Lee was responsible for many of the textures for the cities and vehicles in *MSR*. "Creating city textures was a relatively simple process as we wanted photo realism so it was a no-brainer to use photo reference. Unfortunately, we didn't have digital cameras at the time so all the photos had to be scanned in. The photos were skewed and straightened out in order to make them ready for applying to the 3D model. The best bit was removing random people who had strayed into shot, the hardest bit was removing trees and anything else that obscured the building façade."

LIVING THE DREAM

Several of our interviewees have a lot of love for the Dreamcast console as a development platform. "As a 2D artist the Dreamcast was a joy with a full 256 textures, which meant you could hold a lot more detail and didn't have to rely too much on repeated generic brick textures at a much lower resolution," recalls Lee Carter. Mark Craig is equally complimentary. "I still have a soft spot for the Dreamcast, it was a nice little system to develop for and its GPU was really good."

MSR entered a troubled development process, going from a potential launch title to being delayed numerous times before its final release in the year 2000, right at the time when Sega began to withdraw support for the console. There were many reasons as to why the game was delayed so heavily. "*MSR* was huge in terms of environments and artwork needed, the team wasn't big enough so we took more and more people on" remembers Lee Carter. "We had programmers leave and other programmers having to take over and a lot of code was rewritten after a bad demo. But we got there in the end."

Around the same time, a separate team led by Mark Craig and Jeff worked on *Fur Fighters*, an cartoony first-person shooter/ platformer that took inspiration from games like *Fury Of The Furries*, Rare titles, and *Wonderboy III: The Dragon's Trap*. "The game was originally going to be 30 per cent bigger with four levels on each world and two extra worlds. It was huge as it was but if we stuck to the original plan it would have been gargantuan! The biggest weakness of the game comes from the fact that we aimed too high and in some places the game isn't as polished or refined as we would like "adds Mark. The team would

TIMELINE

1988 MARTYN CHUDLEY FOUNDS RAISING HELL SOFTWARE

1990 *THE KILLING GAME SHOW* IS RELEASED

1993 *WIZ 'N' LIZ* IS RELEASED

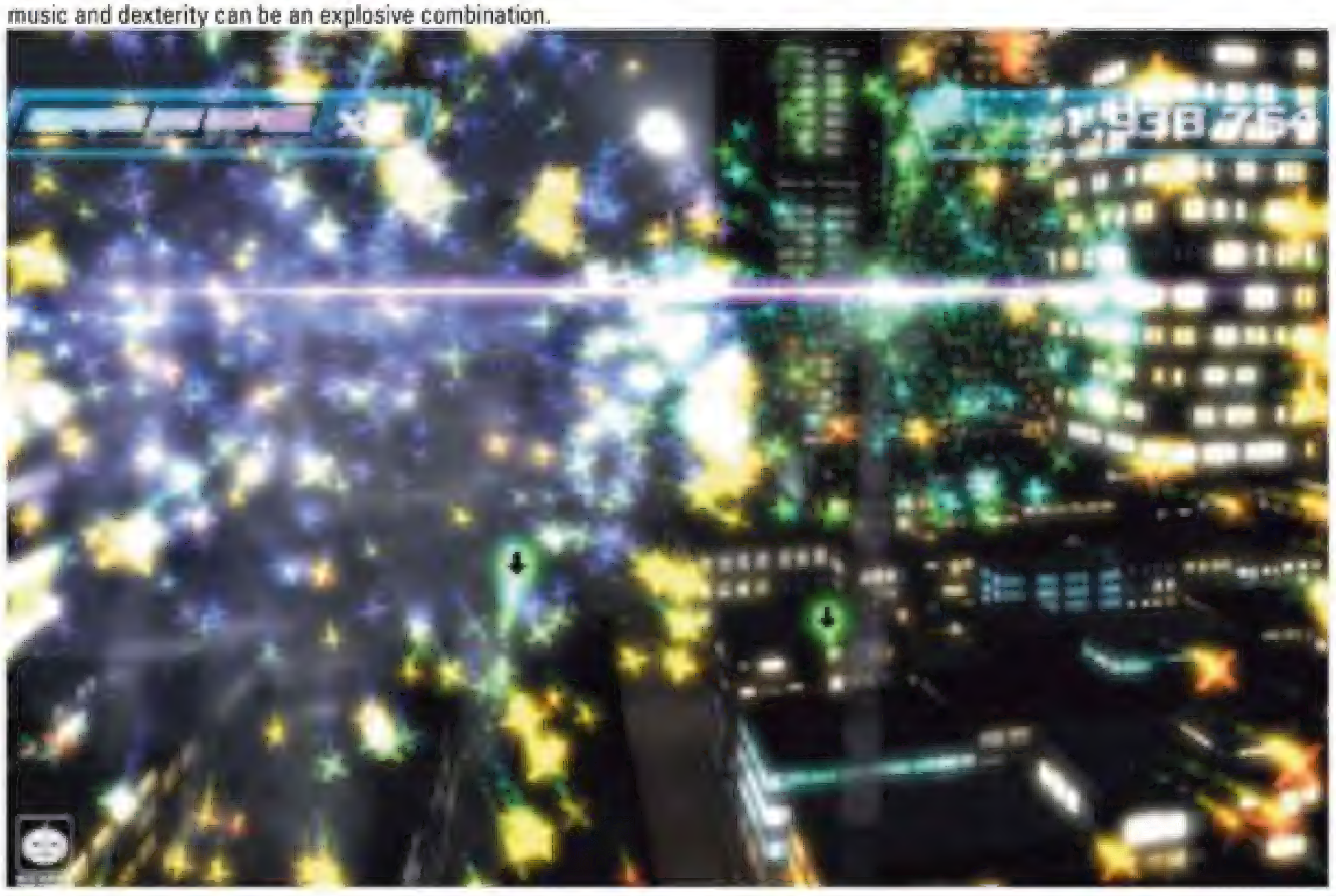
1994 COMPANY RENAMED BIZARRE CREATIONS

1996 TEAM SIGNED BY PSYGNOSIS TO WORK ON FORMULA ONE

1997 BIZARRE CREATIONS RELEASES *FORMULA ONE '97*. BIZARRE CREATIONS ARE APPROACHED BY SEGA TO CREATE A RACING TITLE FOR THE DREAMCAST

2000 *METROPOLIS STREET RACER* IS RELEASED AFTER SEVERAL DELAYS AND DURING THE DREAMCAST'S LAST CHRISTMAS. *FUR FIGHTERS* IS ALSO RELEASED FOR THE DREAMCAST

» [Xbox 360] *Boom Boom Rocket* proves that fireworks, music and dexterity can be an explosive combination.



> **“We didn’t have digital cameras at the time so all the photos had to be scanned”** LEE CARTER ON METROPOLIS STREET RACER

later release a remake for the PlayStation 2 called *Viggo’s Revenge*, which included features not found in the original as well as whole new look. “Sony wanted something that looked technically more advanced than the Dreamcast version. Our tech programmer had come up with a cel-shader that looked very nice as a little side project when we were doing the PC version.”

“As we were making *MSR*, Bizarre’s other team were hard at work making *Fur Fighters* which relied on hand-drawn cartoony textures” recalls Lee Carter. “We got lot of stick for using photos as the artists on that team had to spend a lot more time drawing and designing textures, so we had it relatively easy compared to them. Much easier when you have source material and a real city to copy than it is designing environments and textures from scratch.”

Next generation

Although the Dreamcast era didn’t pay off financially, it did allow them to enter into a relationship with Microsoft who set them to work on the *Project Gotham Racing* series. “I was a lead designer at Bizarre Creations,” says Matt Cavanagh. “My role involved overseeing the game design as well as being a leader and mentor for the game’s design team. I would also oversee the implementation of the key game-play features. I worked with pretty much everyone who Bizarre employed at some time or another. When I first joined the company there were little over 40 employees, and I saw that swell to over 200 throughout my time there.

“The game design was worked on by the whole team. Ideas were formulated in meetings and then those ideas proved or disproved through prototyping. It’s important that the team feels that it owns its game.” Much like *MSR*, photo-research was required. “Yeah, the artists on *PGR* would take thousands upon thousands of photos of the cities they were modelling,” continues Matt. A sequel would follow on the Xbox and went on to improve on the original in every aspect.

Upon the release of the Xbox 360, Bizarre Creations continued to prosper

▶

2001	REVAMPED VERSION OF *FUR FIGHTERS: VIGGO’S REVENGE* IS RELEASED FOR PLAYSTATION 2 *PROJECT GOTHAM RACING* IS RELEASED FOR THE XBOX
2002	*TREASURE PLANET* IS RELEASED FOR GBA AND PS2
2003	*PROJECT GOTHAM RACING 2* IS RELEASED ON XBOX.
2006	*PROJECT GOTHAM RACING 3* IS RELEASED ON THE XBOX. *GEOMETRY WARS: RETRO EVOLVED* ARRIVES AS A FULL GAME ON XBOX LIVE
2007	*BOOM BOOM ROCKET* HITS XBOX LIVE. *PROJECT GOTHAM RACING 4* IS ALSO RELEASED WHILE *GEOMETRY WARS: GALAXIES* HITS NINTENDO DS AND WII
2008	*GEOMETRY WARS: RETRO EVOLVED 2* HITS XBOX LIVE. *THE CLUB* IS ALSO RELEASED
2010	*BLUR* AND *BLOODSTONE* ARE RELEASED ON PLAYSTATION 3, XBOX 360 AND PC. CLOSURE OF THE COMPANY IS ANNOUNCED BY ACTIVISION UNLESS A POTENTIAL BUYER IS FOUND
2011	BIZARRE CREATIONS IS CLOSED BY ACTIVISION

☐ WHERE ARE THEY NOW?

Adam Dickinson

Upon the closure of Bizarre Creations, Adam Dickinson sought a new direction having spent thirteen years within the videogame development industry. Now he is the production director of Mi (www.wearemi.com) who produce cinematic trailers and marketing materials for the games industry and agency brands.

Mark Craig

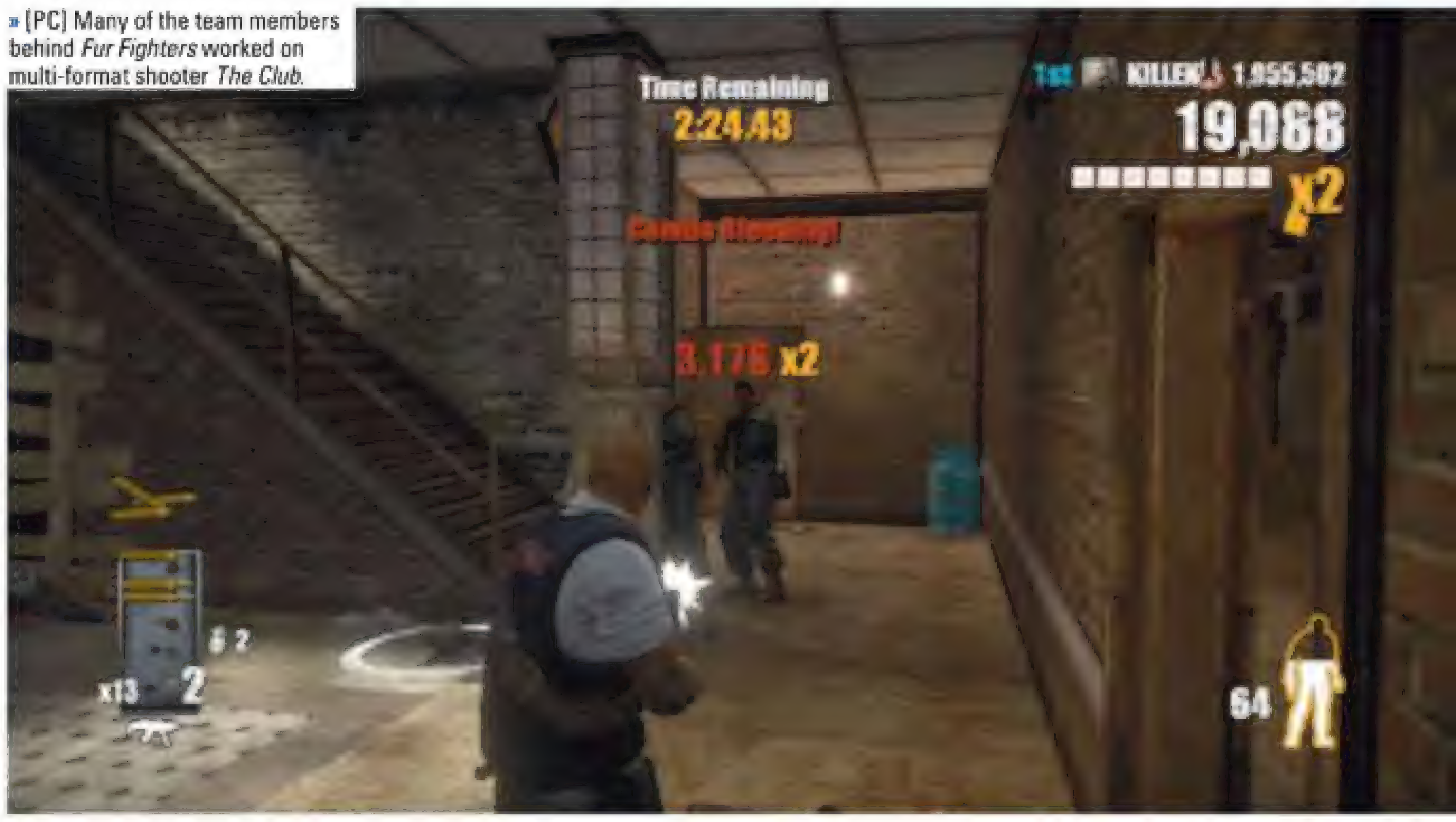
When Bizarre Creations closed, Mark Craig was approached by Pete Wallace (former acting studio head of Bizarre) with the invitation to start up their own independent games studio based in Liverpool. As a result, Lucid Games was set up and Mark Craig works alongside Jeff Lewis and several other former Bizarre Creations employees. To date, *Travel Bug*, a free app for PlayStation Vita and *Pixel Smash*, a game for iOS and Android have been released, with several other games in development that should be released later this year. Mark Craig also released the iOS port of *Fur Fighters* under Muffin Games Ltd.

Lee Carter

Having already been freelancing in his spare time for print media as an illustrator for *2000AD*, Games Workshop, Imagine FX and Boom Studios, it was only natural to continue his work on a full time basis. Lee Carter continues to illustrate works for *2000AD* as well as on concept art for movies, kids books and advertising.

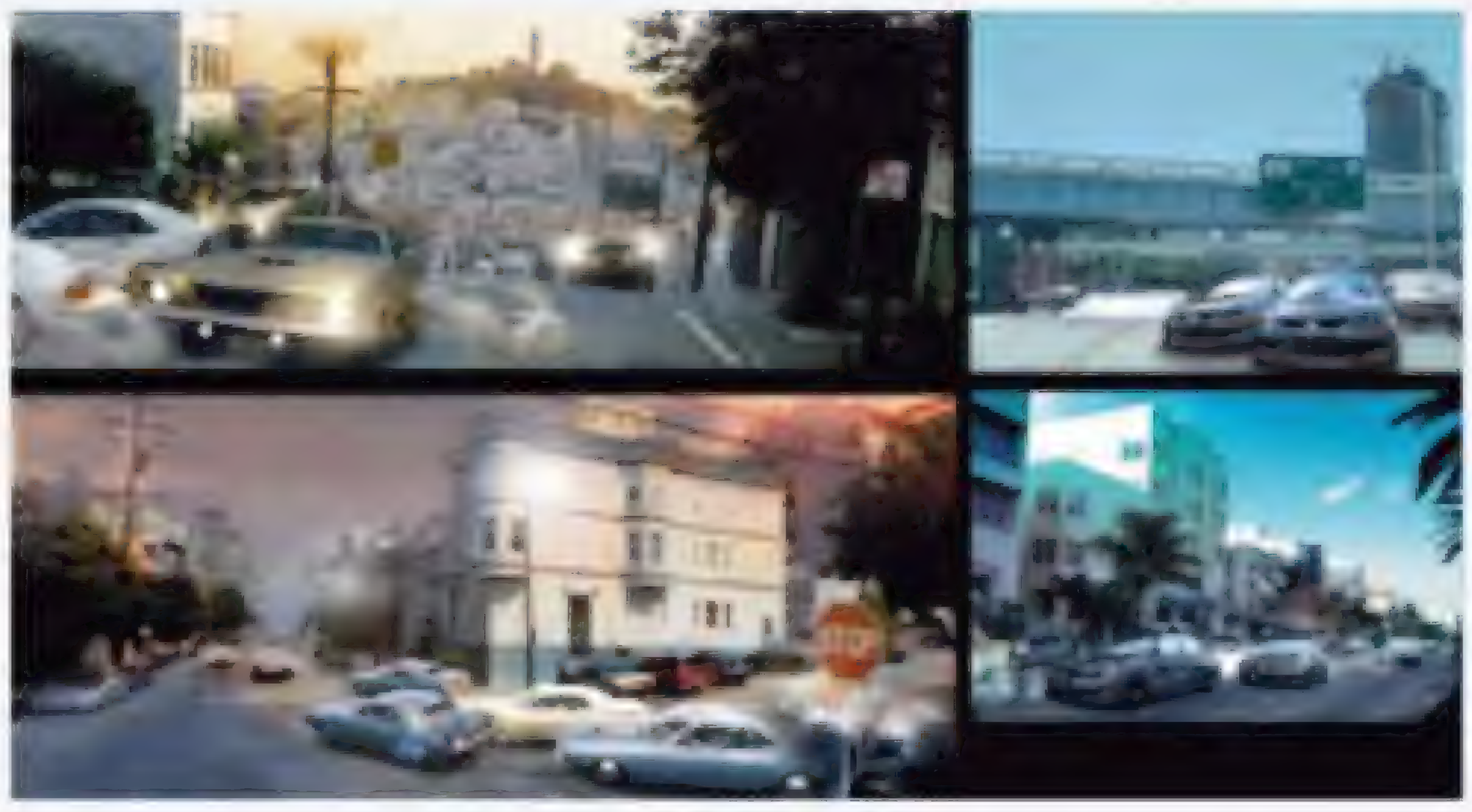
Matt Cavanagh

With more than 20 years of videogame development experience under his belt, Matt Cavanagh went on to form his own family-run company called Totem Games. Founded in June 2011 and based in Chester, the company focuses on creating small games for mobile devices which so far have included *SpaceOff*, a unique retro shooter for two players on the iOS and Android devices, and *Free Quiz*, a completely free game that can be downloaded from the iTunes store.



» [PC] Many of the team members behind *Fur Fighters* worked on multi-format shooter *The Club*.

☐ ALL A BLUR



Earlier this year, footage of an unannounced racing title that was in development was released online by Chris Davie, a former artist with Bizarre Creations, showcasing a re-imagining of a Brighton race track and a new one in Dubai highlighting a new game engine. On his own blog he wrote "by the end it had gotten to about an alpha level, there was some really nice things in there, though we still needed to add a load of destructible objects inside the shopping mall and tram station we drive through in the video, and inside the hotel lobby of the building we drive on the outside of here." Adam Dickinson confirmed he had been working on the sequel when asked about the difficulties in creating the futuristic style of *Blur*. "It was the same on *Blur 2* (unreleased) the constraints were difficult and some of the artists who relied on pure photographs only had to up their game."

with games such as *Project Gotham Racing 3* and 4 hitting the console along with several other side projects including the quirky *Boom Boom Rocket* and the sublime *Geometry Wars* titles.

With a relationship still strong with Sega, the concept of *The Club* came about. "*The Club* started out as a quirky prototype where players had to shoot enemies against the clock. The characters at this point were modelled to look like they were made out of cardboard boxes – purely intentionally because this forced us to nail the gameplay without setting a look for the game. The look of the game was intentionally left undecided until we had signed a publisher to distribute the game, which meant that they could be heavily involved in this stage of the development," says Matt.

Lee Carter has fond memories of working on *The Club*. "Designing environments and characters was far more up my street, mainly dare I say it, because I'm not really a car fan. But shooting bad guys is, well, fun! Plus the mechanics of The Club being almost race-like, made it very replayable and competitive amongst the development team."

Mark Craig also worked on Bizarre's excellent and greatly underrated shooter (it's a firm favourite in **Retro Gamer** towers). "This was also a third-person shooter of sorts, so it wasn't a massive leap," he explains. "As well as the racing team we always had a character game team. The initial idea came from wanting to do a shooter that was competitive and not bogged down by a story with loads of cut scenes." *The Club* was released in 2008 on PlayStation 3, Xbox 360 and PC. It had great music by Richard Jacques and Jesper Kyd. *The Club* received favourable reviews and a pretty decent reception from gamers.

Activate

In 2007, the company was purchased by Activision, a decision that invoked a mixed response from its employees. "I was a bit apprehensive about the company being bought," says Mark. "We'd been independent for a long time and the thought of being owned by a massive company felt a bit daunting. I don't think anything could have been done differently except not selling out, of course, but hindsight is a wonderful thing and it felt like the right choice at the time."

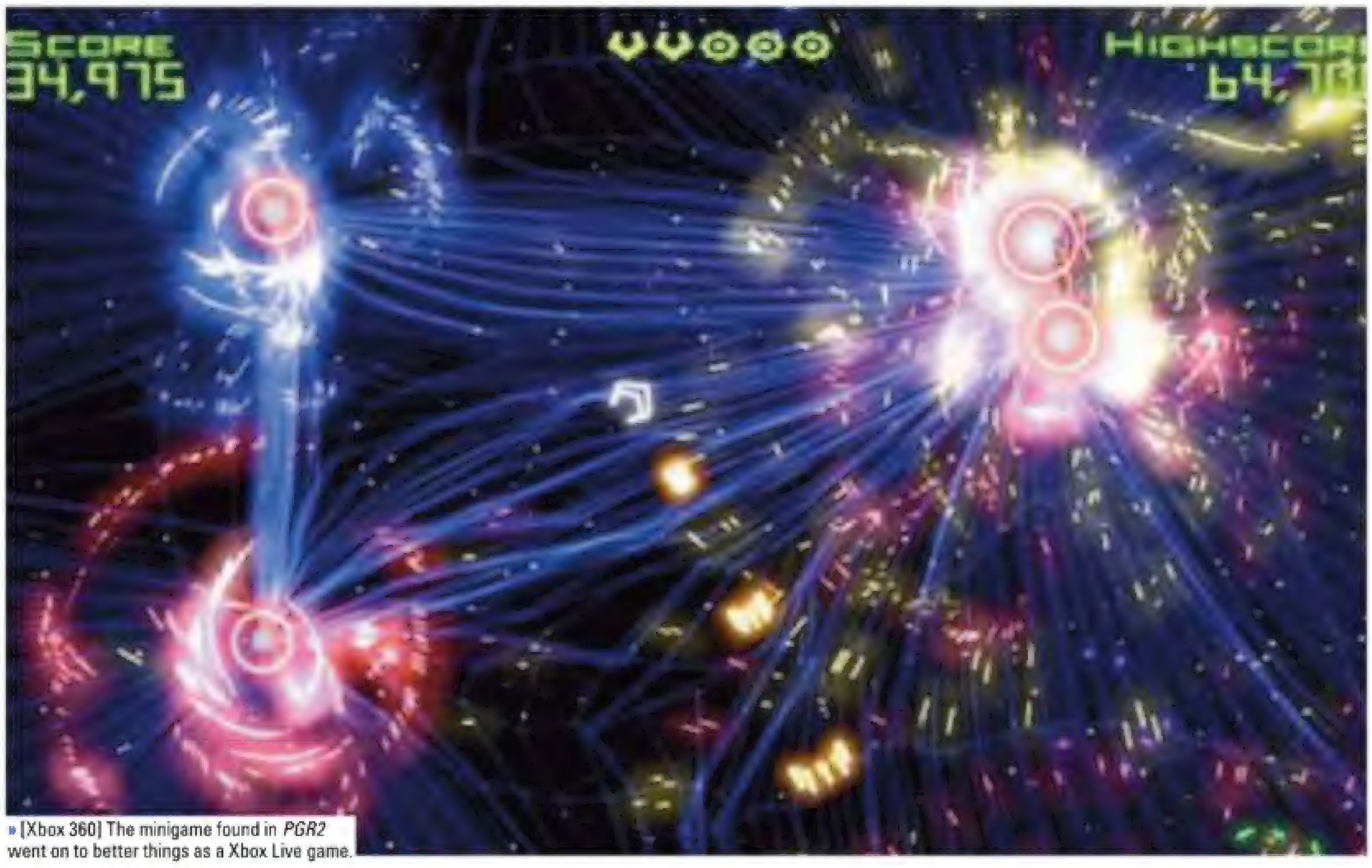
On the other hand, Adam Dickinson felt that the move was necessary to survive. "I think it was a great deal and a great move – Bizarre wouldn't have survived at 200 staff otherwise. Ultimately, it was a big team and the games needed to deliver – the budgets were big for development and small for marketing, also releasing another *Bond* game at the same time in the same week as *Call Of Duty* wasn't great," recalls Adam Dickinson, and he wasn't alone in his concerns. "I started to get worried when I noticed how big the company was becoming" says Matt. "Bizarre seemed to be hiring like crazy during the last year or so."

Nevertheless, everyone got on well at the company and work began on the next two projects, *Blur* and *Bloodstone*. *Blur* was a well crafted racer that blended arcade racing with power-ups, but although it was well received by the critics, its conflicting styles polarised gamers. *Bloodstone* was a competent game that was highly polished but received mixed reviews. Neither game performed as expected at retail although there were signs that trouble was brewing.

"I think the first warning sign was when *Blur* got pulled by Activision just before it was about to be submitted and they effectively rebooted it," remembers Mark. "I really got worried when *Blur* was released and it dropped out of the charts very quickly."

In October that year it was announced that Bizarre Creations would be up for sale. "I found out my wife was pregnant with

> **“I got worried when Blur was released and it dropped out of the charts very quickly”**
>
> MARK CRAIG ON BIZARRE CREATIONS' FINAL YEAR



» [Xbox 360] The minigame found in *PGR2* went on to better things as a Xbox Live game.

our third child the day before they told us they were likely to close the studio, it would be fair to say that it came as a bit of a shock!" continues Mark. "During the last three months everyone behaved in a very professional and dignified manner. People put CVs together, learned new skills and even made little games of their own. I think people's conduct was a real credit to the company and I think our composure and dignity took Activision by surprise.

"On the last day we brought in some consoles and played through Bizarre's back catalogue, I remember feeling proud at what we'd accomplished in our seventeen years. Finally I put together a box of personal items which all contain memories from Bizarre. I still find it difficult to go through the box as it makes me sad thinking about everything that was lost. One day when I'm ready I know I'll open it again and it'll put a smile on my face."

Lee Carter also remembers the moment well. "The games industry was quite slow at the time and you really needed a hit in order to keep the spreadsheets happy. The final few months were strange in the fact that we had nothing to do but still needed to be at work. Activision were fantastic in the fact we had job fairs organised and a chance to work abroad in other Activision owned companies."

Matt also felt it strange. "Everyone was still coming into work, but I think we knew in our hearts that there was little chance of the company being saved as we'd swelled our ranks so much and so the company's overheads must have become huge." Sadly they were right as Bizarre Creations shut its doors the following year.

End of an Era

Yet the disbanding of Bizarre Creations hasn't spelt the end to the talented individuals that made the company so memorable. Aside from Lucid Games, Totem Games and Muffin Games that our interviewees went on to found, other splinter companies rose from the ashes. Curly Rocket, HogRocket and Grubby Hands were all founded by former employees of Bizarre Creations. Playground Games went on to hire many ex-Bizarre Creation staff, who worked on and released the excellent *Forza Horizon* last year. Sumo Digital, who has established itself with racing titles such as *OutRun Arcade* and *Sonic And Sega All-Stars Racing*, and its innovative sequel.

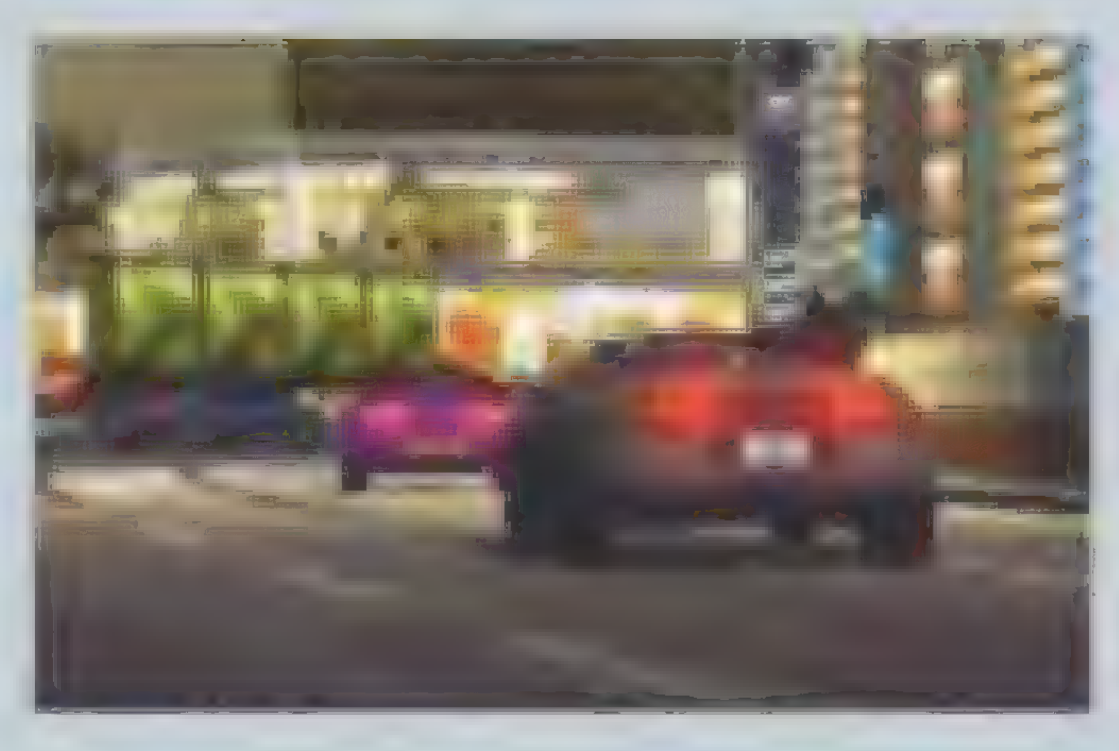
"For me a lot of friendships were made over the 13 years I was there and that was the saddest thing," reminisces Lee. "I decided to leave the games industry as I really didn't think it was for me any more, too many suits. Thankfully a lot of the skills I learned while at Bizarre helped me get back into illustration and comic book art."

Mark also has fond memories of the company. "I knew I wanted to work for them as soon as I first spoke to them on the phone and I enjoyed the whole sixteen years I spent there." "The people were amazing, some real stars, some of whom I still see and call friends," adds Adam Dickinson. "The best day for me as a *Bond* fan was being part of the world wide première, meeting Barbara Broccoli and sitting in the DB5 from *Goldfinger*." Bizarre Creations may no longer exist in name, but its input continues to be admired throughout the industry.

☐ SIX OF THE BEST

Formula One [1996]

The original PlayStation release was a fantastic feat. Not only did it feature the official tracks and commentary from Murray Walker himself, it had realistic handling, authentic graphics and sophisticated opponent intelligence.

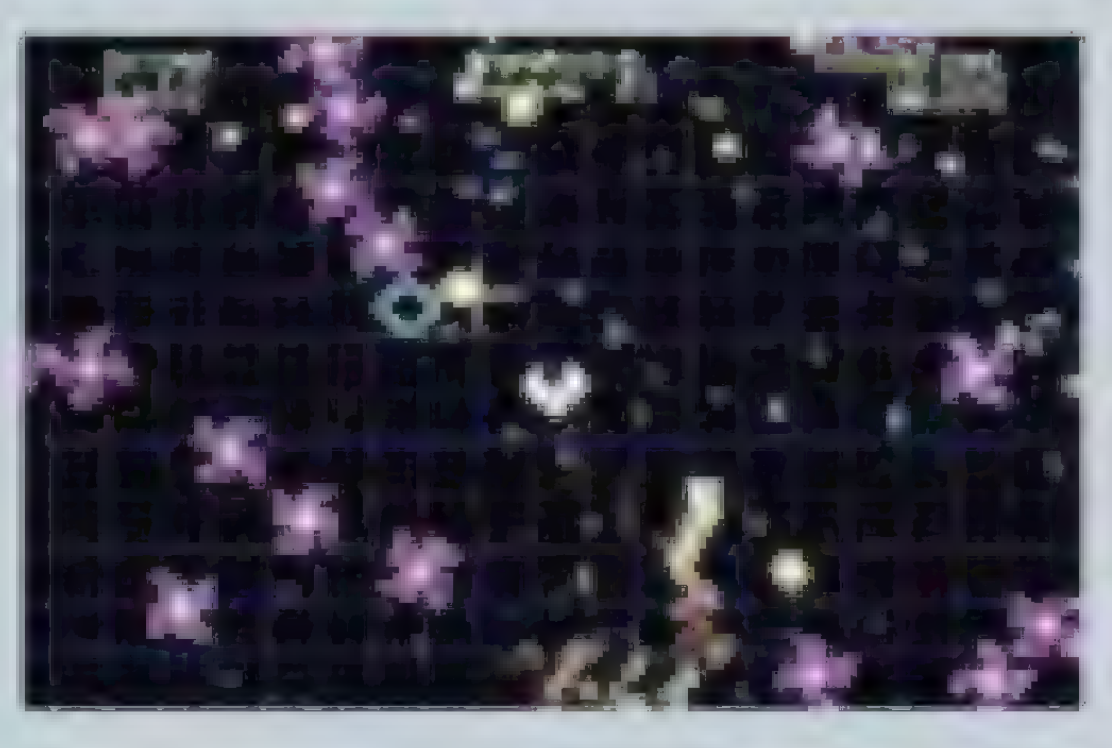


Metropolis Street Racer [2000]

MSR is a staggering achievement for the Dreamcast by featuring tracks that were re-created purely from photographs. The innovative kudos system rewarded clever and skilful driving.

Fur Fighters [2000]

Featuring an cast of critters intent on rescuing their offspring, *Fur Fighters* is a fun title that blends platforming, puzzle solving and shooting elements. Although it suffered from camera issues, unique visuals create a compelling package.



Geometry Wars: Retro Evolved 2 [2008]

Featuring six modes including Deadline, Waves, King, Evolved, Pacifism and Sequence, each one took the 2D shooter formula and gave it a twist to create a very compelling score attack title.

Blur [2010]

Although it divided players with its futuristic visual style and power-up weaponry within a world of arcade racing, the unique social networking features linking with Facebook and Twitter were a nice touch.

Project Gotham Racing 4 [2007]

Saving the best till last, *Project Gotham Racing 4* introduced bikes to the racing roster and the concept of real-time changing weather conditions showcasing the Xbox 360's capabilities.

☐ ONE TO AVOID

Treasure Planet [2002]

With a company of Bizarre Creation's pedigree, it's difficult to find games to avoid as such, just ones that don't quite reach their usual high standards. *Treasure Planet* is a well made title, but doesn't accomplish anything original, focusing instead on standard platform fare.

☐ LET THE FUR FLY

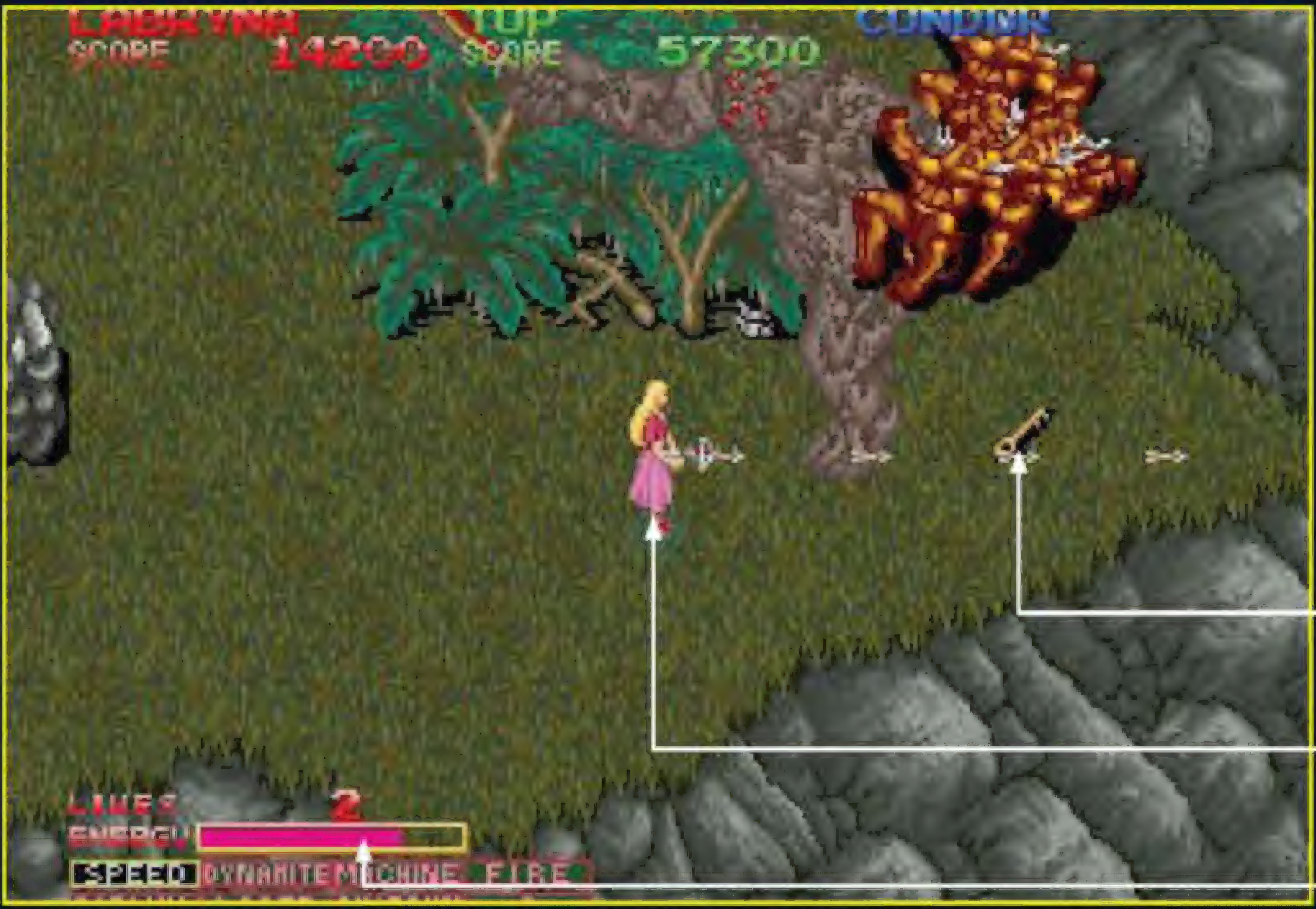
Right then, let's go!

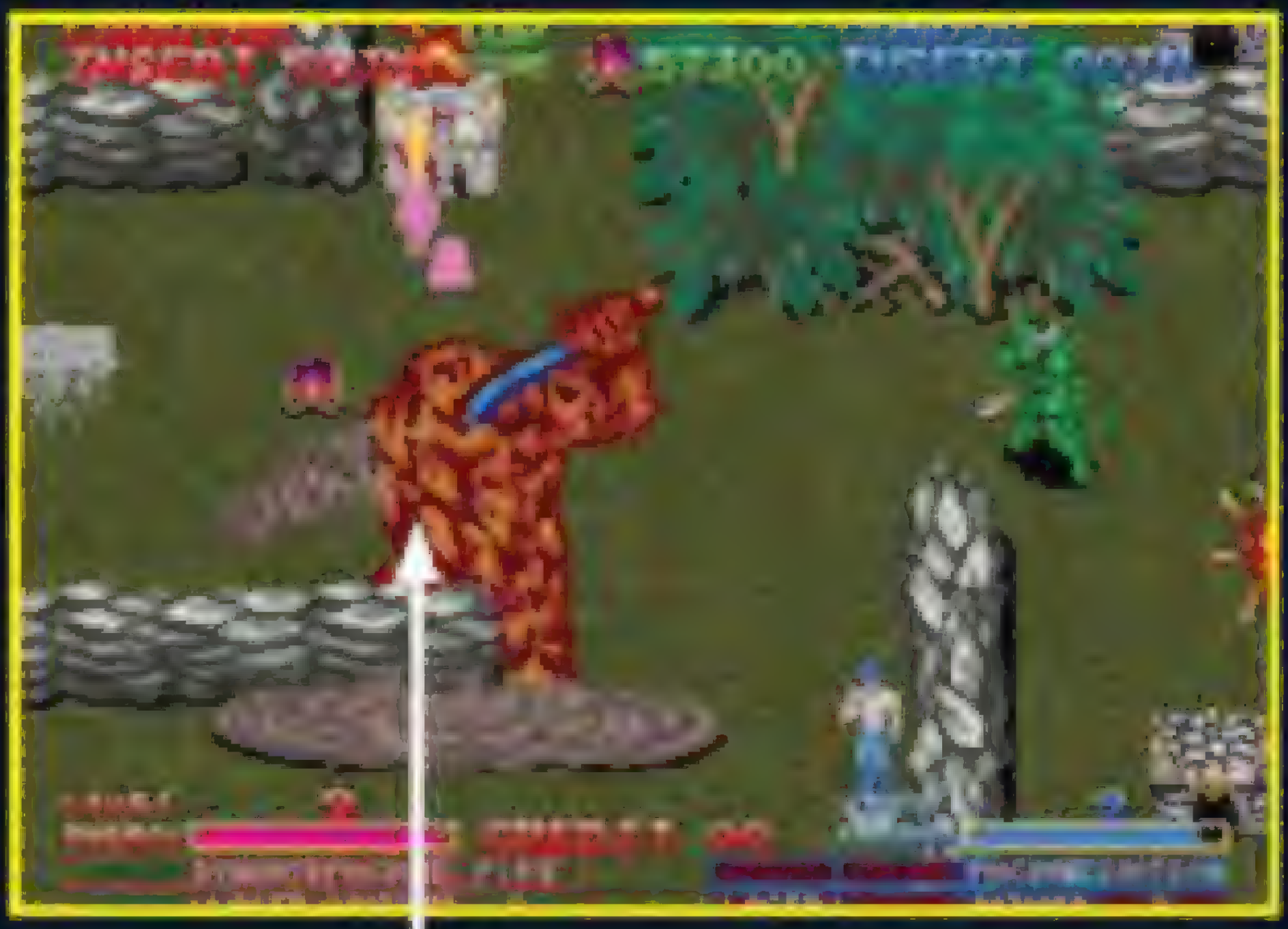
Although Bizarre Creations was sold to Activision, one of the franchises that didn't make the jump was the cult classic *Fur Fighters*, something the original creators used to their advantage. "When Martyn sold Bizarre Creations to Activision, he didn't sell them the rights to *Fur Fighters*, he sold them instead to Jeff Lewis who was the chief designer of the game (for a fiver)," recalls Mark Craig who worked extensively on the Dreamcast original's game design, enemy behaviour and game code. "I thought about bringing the game back in some form after I contributed to an article in **games™**. After Bizarre had closed I realised that it would be technically possible to port the game over to iOS, I talked to Jeff about this and he thought it was a good idea. I worked on the port in my spare time very slowly but I was very determined and I didn't give up." Released in July last year as a Muffingames Ltd creation, the game is a highly accomplished port that can be downloaded from the App store as *Fur Fighters: Viggo* on Glass for free or for the princely sum of 69p to remove those pesky adverts.

» [PS3] *Bloodstone* looked the part and combined a variety of gameplay styles with mixed results.

THE UNCONVERTED

Arcade games that never made it home





» *Devil World* has a nice variety of enemies, such as this sword-carrying lava monster in the first stage.

» Your aim on the majority of stages is to find the key and take it to the level exit.

» The Western version is known as *Dark Adventure*, it adds a third player character and features a different weapon system.

» *Devil World* utilises a *Gradius* weapon system, it finds you picking up power-up orbs to select the weapon you want.

DEVIL WORLD

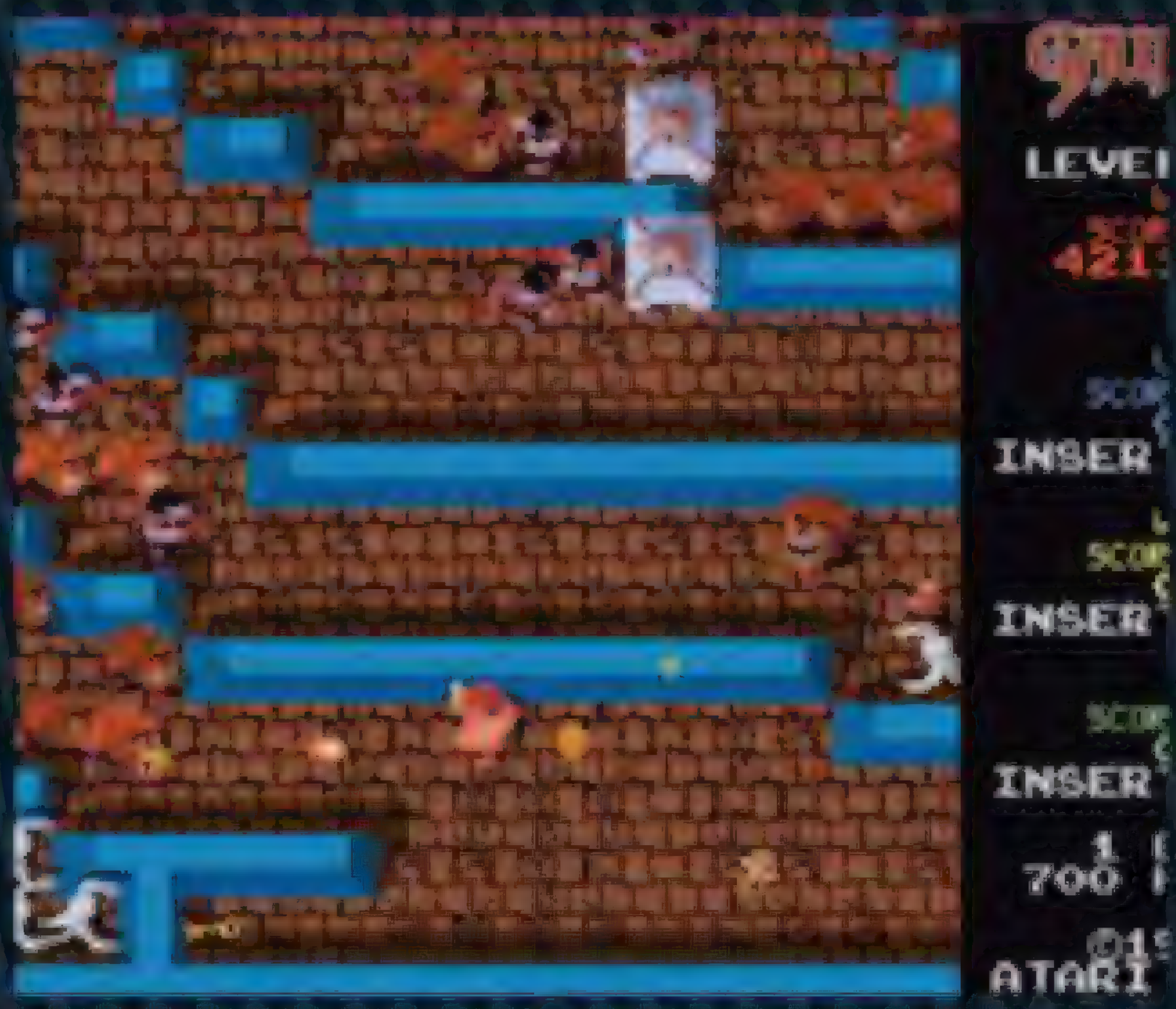
■ **Developer:** Konami ■ **Year:** 1987 ■ **Genre:** Run-and-gun

■ **Sharing its title with a fairly obscure Nintendo Famicom dot munch maze game, *Devil World* is a run-and-gunner that combines aspects of *Gauntlet*, *Castlevania* and *Gradius*. One tasty sounding jam of arcade classics, it's disappointing then that it feels like a bit of a missed opportunity. Visually and atmospherically it shines, however, the gameplay doesn't quite match up to those areas, suffering from repetitive stages, slowdown whenever the screen is packed with enemies and some dubious enemy AI and hit detection.**

The player characters comprise two heroes: a crossbow-bearing reporter called Labryna and an Indiana Jones type named Condor who carries a pistol. At the start, the pair are seen opening a mysterious chest in front of the world's media, and by opening it they unwittingly release an ancient evil spirit and find themselves transported to another dimension. Their only way back is to battle through 40 plus stages of monster-infested stages, with the aim in each to locate a key and take it to the level exit. Sometimes these keys are just sat on the ground ready for retrieval but, more often found inside one of the breakable bricks and tombs.

The weapon system is where the *Gradius* reference is found, and works as you would expect: you collect power-up orbs that move a cursor over the weapon you want, all of which are listed in a table. On the whole, *Devil World* feels most comparable to *Gauntlet*, with the enemies relentless in their attacks and vast in number – though it is possible to lessen their numbers by destroying the tombs they spawn from. Making the mission harder, in addition to monsters you must also be mindful of deadly level boundaries too. And there's also the fact that *Devil World* only gives you a certain number of continues, and when that amount is reached the game is over.

One of the most interesting things about *Devil World* is that the Western version of the game differs from its Eastern cousin. Renamed *Dark Adventure*, Konami introduced a third player character (another adventurer called Zorlock), and gave the player characters' all new short-range weapons too. The *Gradius* system was also dropped for designated weapon pick-ups instead, a la *Contra*. There are moments of fun to be had, but overall Konami was capable of much better.



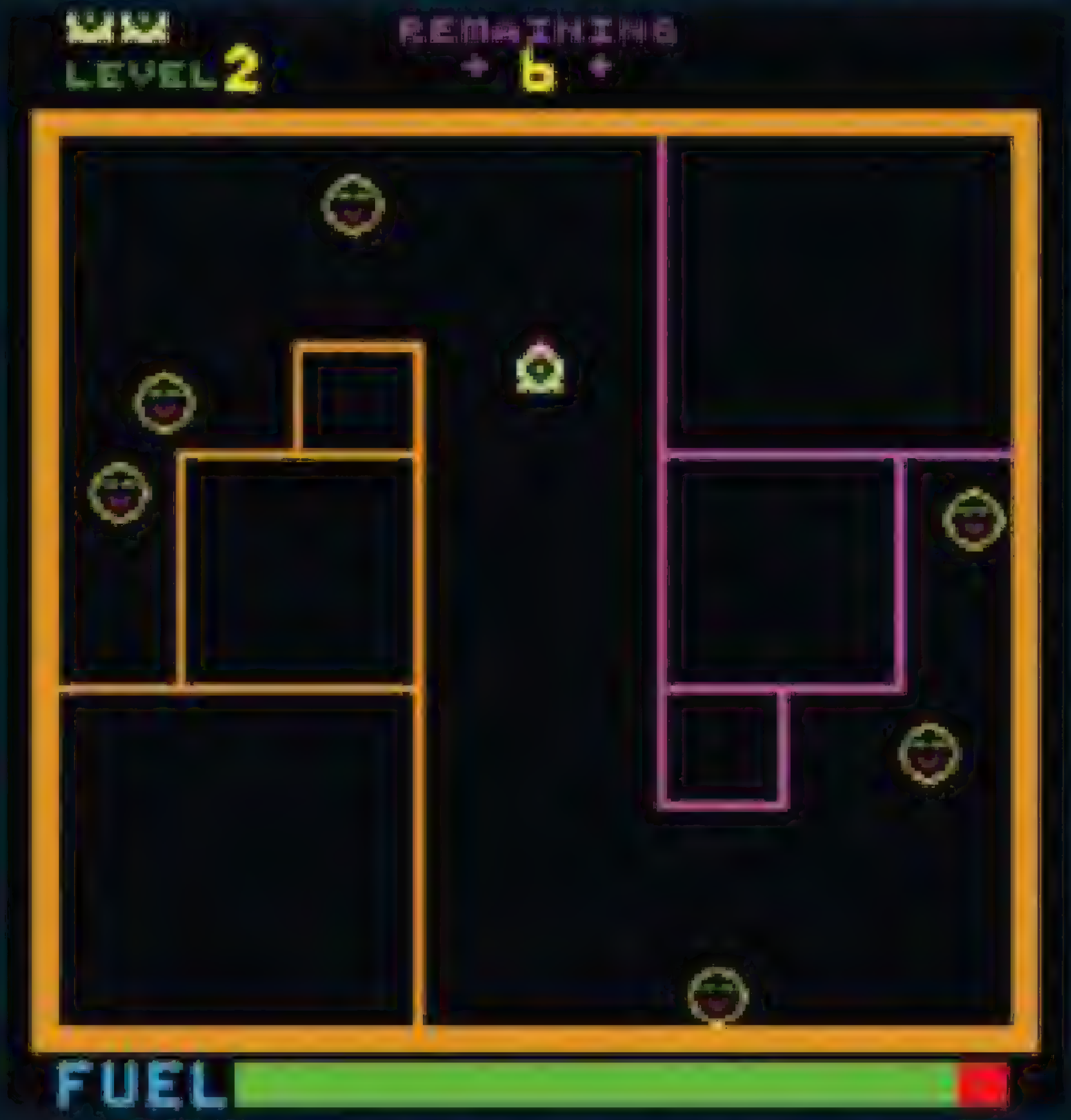
CONVERTED ALTERNATIVE

GAUNTLET 1985

With four player characters to choose from, various pick-ups to utilise and torrent of enemies to fight your way through, the money-devouring dungeon crawling classic is a pretty good alternative.

MEGADON

■ **Developer:** Photar ■ **Year:** 1982 ■ **Genre:** Shoot-'em-up



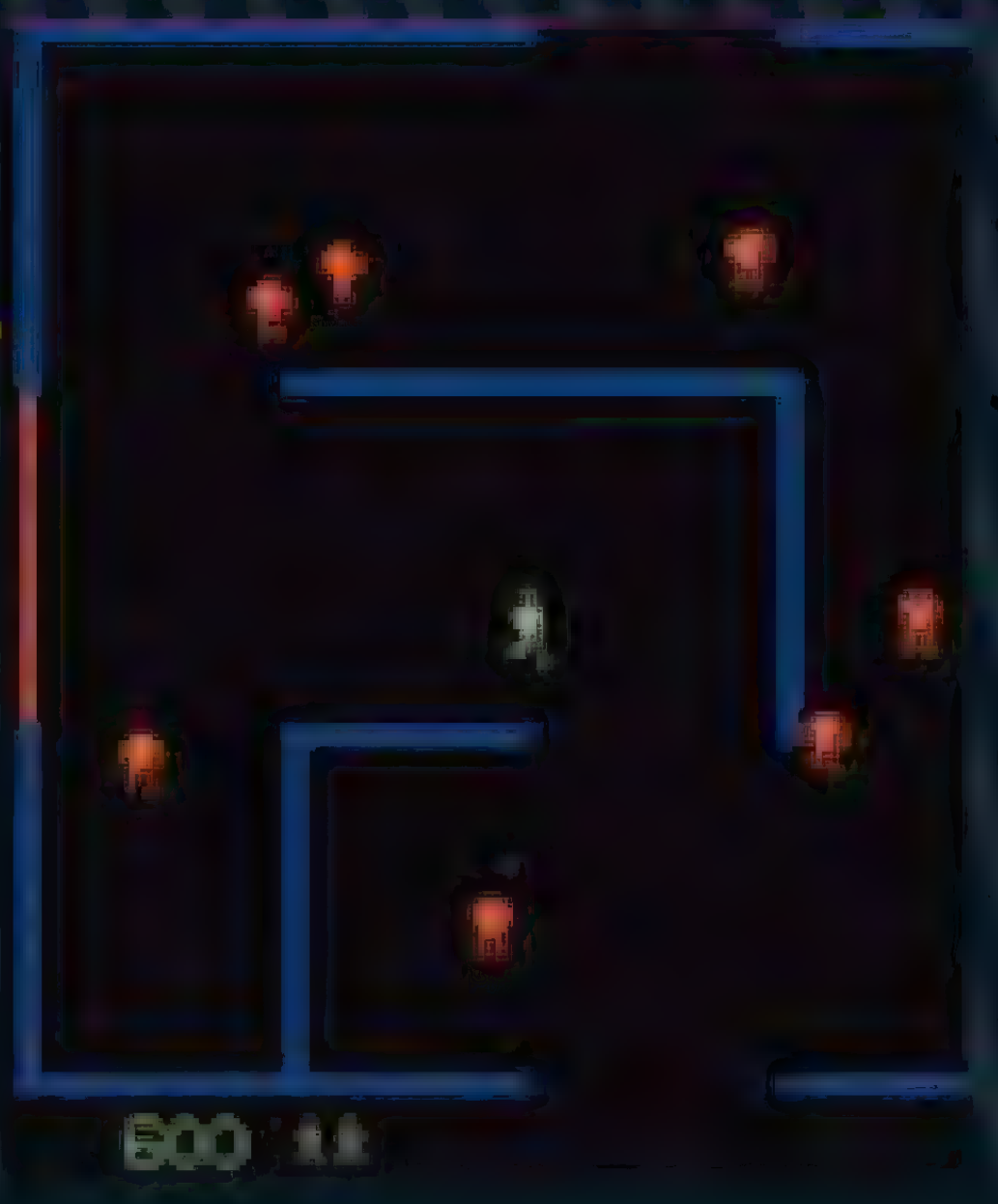
» [Arcade] Fire off too many duff shots and very quickly the environment becomes a deadly place.

■ **Shooters come in many styles, so to find one (especially an oldie) that still manages to surprise is unusual.** Though we'll admit *Megadon* does feel a bit like Stern Electronic's *Berzerk*, it adds a lot of its own ideas. Its gameplay boils down to offering players a fun test of accuracy, quick firing and keeping alert. Steering a spaceship plonked into enemy-filled arenas with a limited number of bullets and fuel, you must clear the screen of enemies before either runs out. The enemies have the power to fire back, but more deadly is the fact that your bullets pinball wildly around the screen if they fail to hit a target, and if they come back and hit you then it's game over – firing off too many bad shots very quickly makes the environment deadly. And this is the simple genius of *Megadon*: it requires you to be fast but also accurate. Not only do you have to be conscious of how much fuel you have, but when gas reserves get to about half full, a character similar to *Berzerk*'s infamous Otto will appear on the scene and hone in on your ship.

CONVERTED ALTERNATIVE

BERZERK 1980

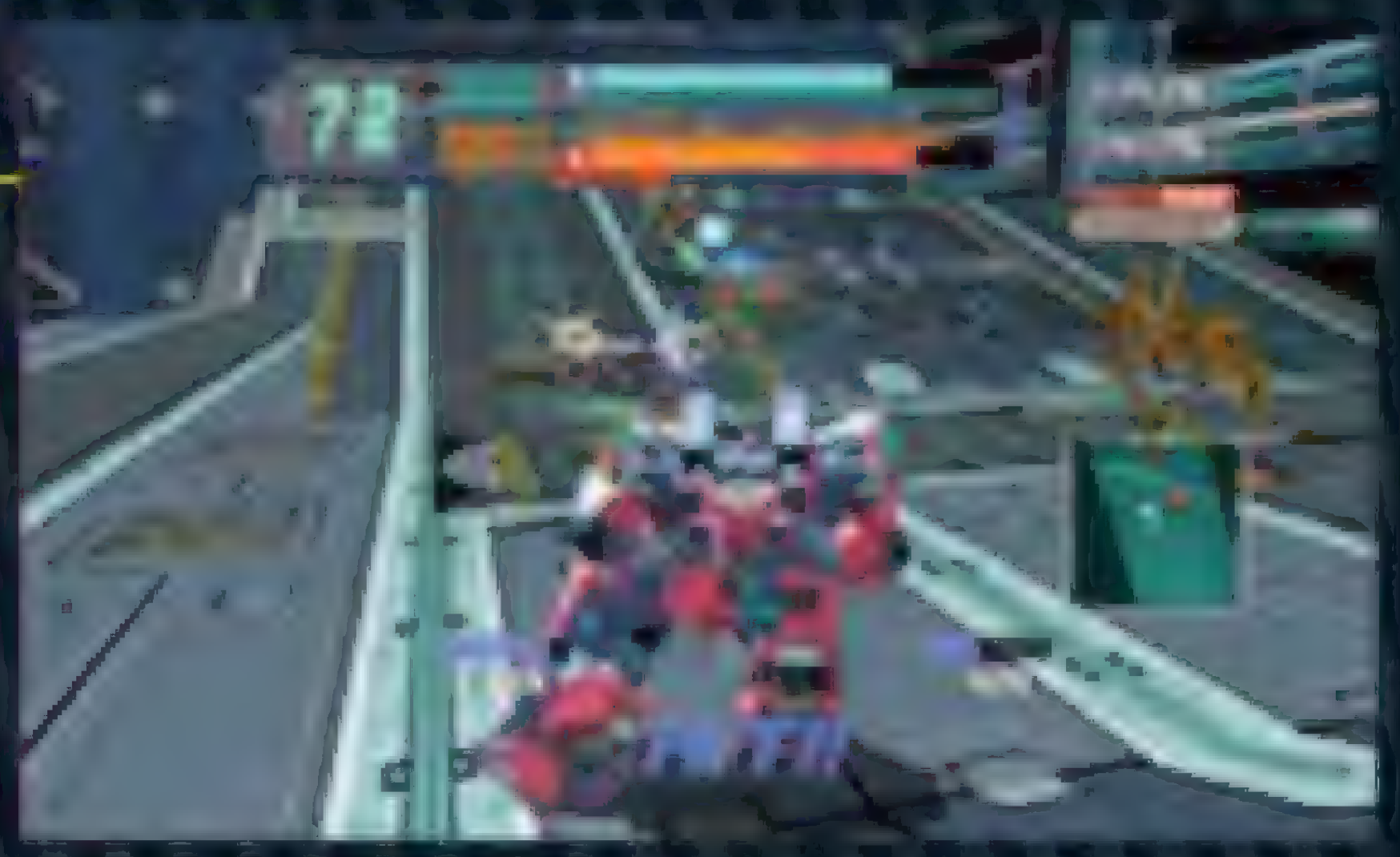
The maze shooter classic is a good alternative as it has similar gameplay to *Megadon* – though you don't have to destroy all of the enemy targets in *Berzerk* (though doing so nets you a nice bonus). An arcade classic, but one converted to a few systems.



CONVERTED ALTERNATIVE

CYBER TROOPERS: VIRTUAL-ON 2005

If you're looking for a solid game of duelling droids look no further than Sega's *Virtual-On* series. The series has spawned four games (three of which appeared in arcades) and all have appeared on various home consoles.

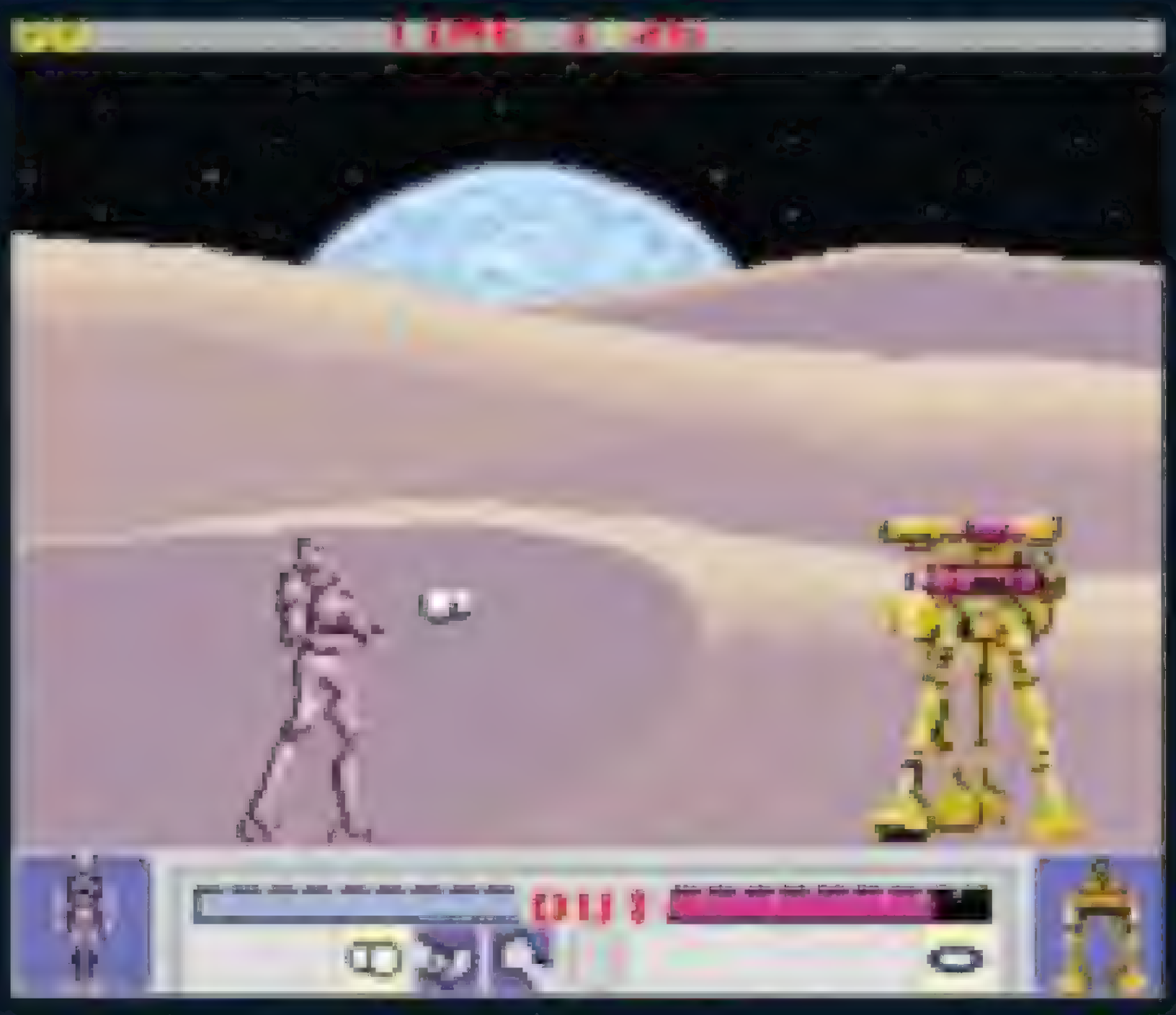


GALACTIC WARRIORS

■ **Developer:** Konami ■ **Year:** 1985 ■ **Genre:** Beat-'em-up

■ **The most staggering thing about *Galactic Warriors* is that despite being released in 1985, and being Konami's second ever beat-'em-up, it's still better than *Rise Of The Robots*.** *Galactic Warriors* looks and feels a bit long in the tooth though, and to be honest is probably only really worth playing if you're a massive fan of fighting games starring robots and have an weird urge to see where this sub-genre most likely originated from.

You get a choice of three different robots characters. Each has a shield, which lessens the amount of health lost to attacks, and their own selection of attacks. All of them have a punch and kick attack, but one also has a sword, another has a telescopic arm like a robot Dhalsim and there's also a female robot that fires her expensive state-of-the-art breast implants at her opponents. The problem is players must toggle between which of the three attacks they want to use during the fight, and this makes for some pretty stilted combat. It's not a terrible fighter, but it's not great either.



» [Arcade] Here are the infamous 'booby bullets' – the best move in any fighting game… that stars robots by Konami.

BEST LEFT IN THE ARCADE

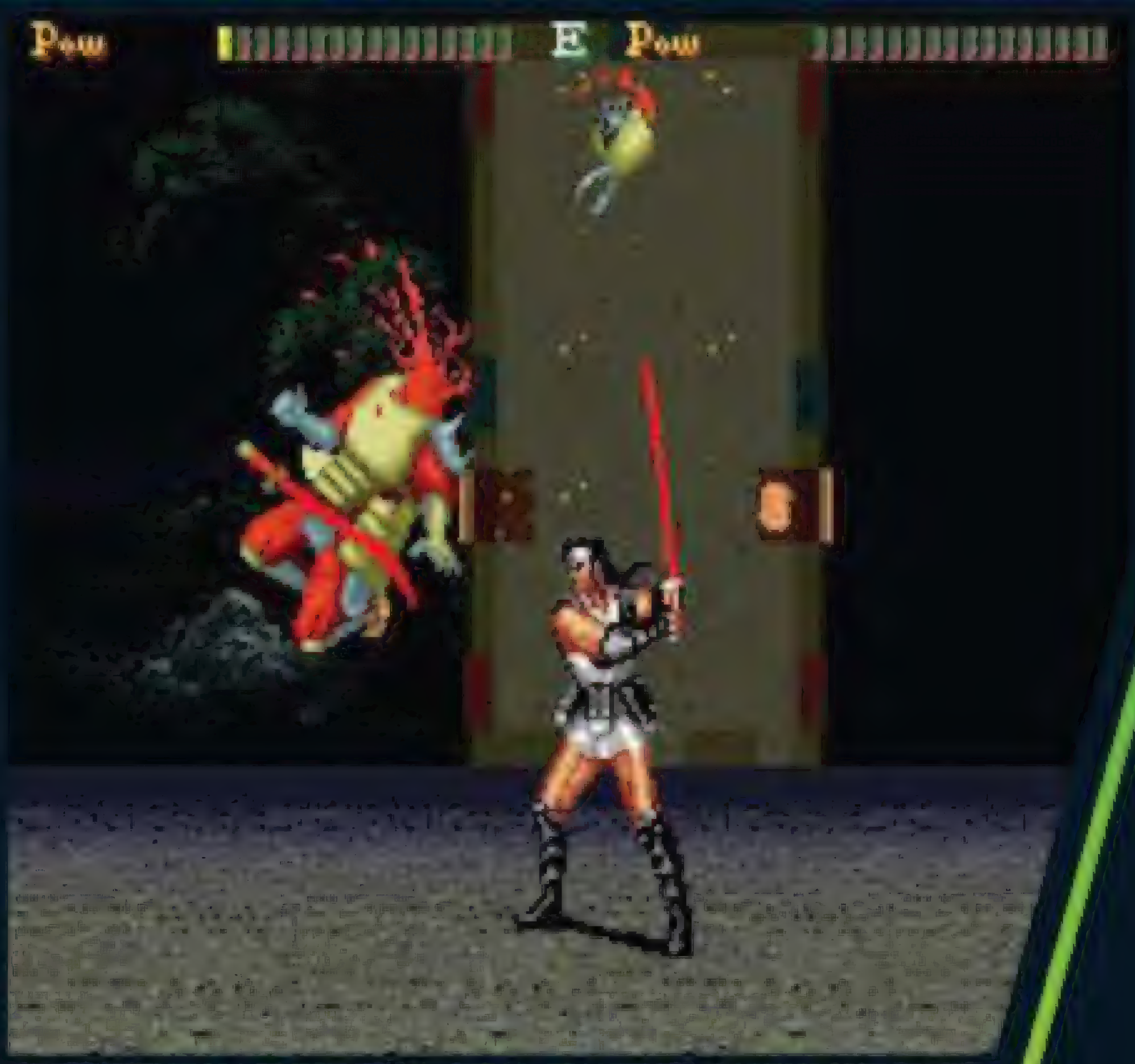
KABUKI-Z

■ **Developer:** Taito ■ **Year:** 1988 ■ **Genre:** Beat-'em-up

■ **Intended to receive a Mega Drive conversion at one stage, courtesy of Kaneko (*DJ Boy*), this tough side-scrolling hack and slash game has an *Onimusha* style theme (supernatural horror meets Japanese history) and relies on gore to draw gamers in.** Released quite a few years before *Mortal Kombat*, *Kabuki-z* has buckets of blood, fatalities and even a final boss with four arms.

The background graphics are really well detailed, and the bosses are imaginative too – our standout being the beefy muscleman on all fours that when you kill him from his back bursts two feral-looking children armed with swords. All this doesn't paper over though the poorly designed fighting game beneath.

With limited moves and repeated enemies, its gameplay quickly becomes tiresome – it also doesn't help matters that the bosses are incredibly tough and when you die you're forced to start the entire stage from scratch. Its combination of being frustrating and a bit bonkers, means it's not a game we really recommend and is probably a good thing that it never left the arcades.



THE HISTORY OF...

FINAL FANTASY

From setting the standard of Japanese role-playing games with its first instalment to rewriting the rules of the genre with its seventh chapter, Final Fantasy has continually reinvented itself in the 27 years since the franchise's birth. Here, key people from Square Enix who brought these experiences to life discuss working on the series, as we revisit every Final Fantasy game ever made…

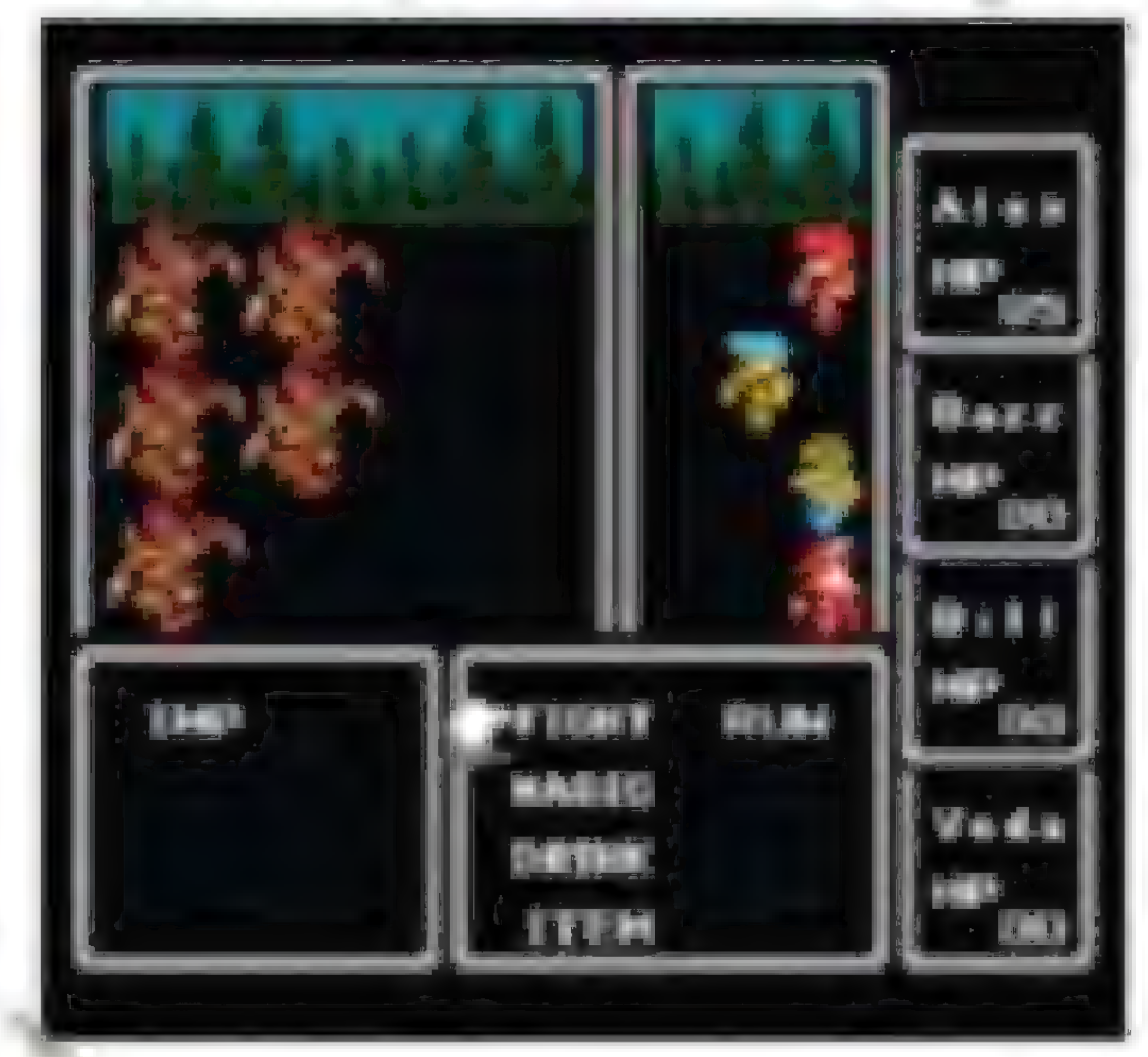
1987 (Japan)

Final Fantasy (NES)

■ Everyone's heard the story. The original *Final Fantasy* was creator Hironobu Sakaguchi's then-final attempt to produce a hit game, with his previous titles having struggled for Square – if it failed, he'd quit the games industry and try something else. Such a title would eventually become ironic, but Sakaguchi's choice of title has always been a philosophical matter: he approaches each game as if it could be his last, encouraging his team to incorporate every possible idea rather than saving them for future instalments.

Subsequent games *Lost Odyssey* and *The Last Story* are examples of this same mentality, and you can see that particular design direction in *Final Fantasy*, with its previously unseen mixture of sci-fi and fantasy genres. It built somewhat on Enix's *Dragon Quest* in basic combat mechanics, but was also bolstered by a largely open world map and relatively freeform class system. Fundamental to the first *Final Fantasy* was the evolution of the way you interacted with the environment – players went from slowly moving through the world on foot to getting land vehicles, and, later, airships, which would become a fun trademark of the series as they offered full, instant exploration of the world.

This relationship with the environment is one of the greatest immersive triumphs within the *Final Fantasy* series, and this first instalment pioneered this idea. *Final Fantasy* represented the next phase of the RPG, as well as Square's resuscitation as a company, with the game becoming an instant hit in Japan and restoring Sakaguchi's faith in the medium, though the game wouldn't find its way here until 2003.

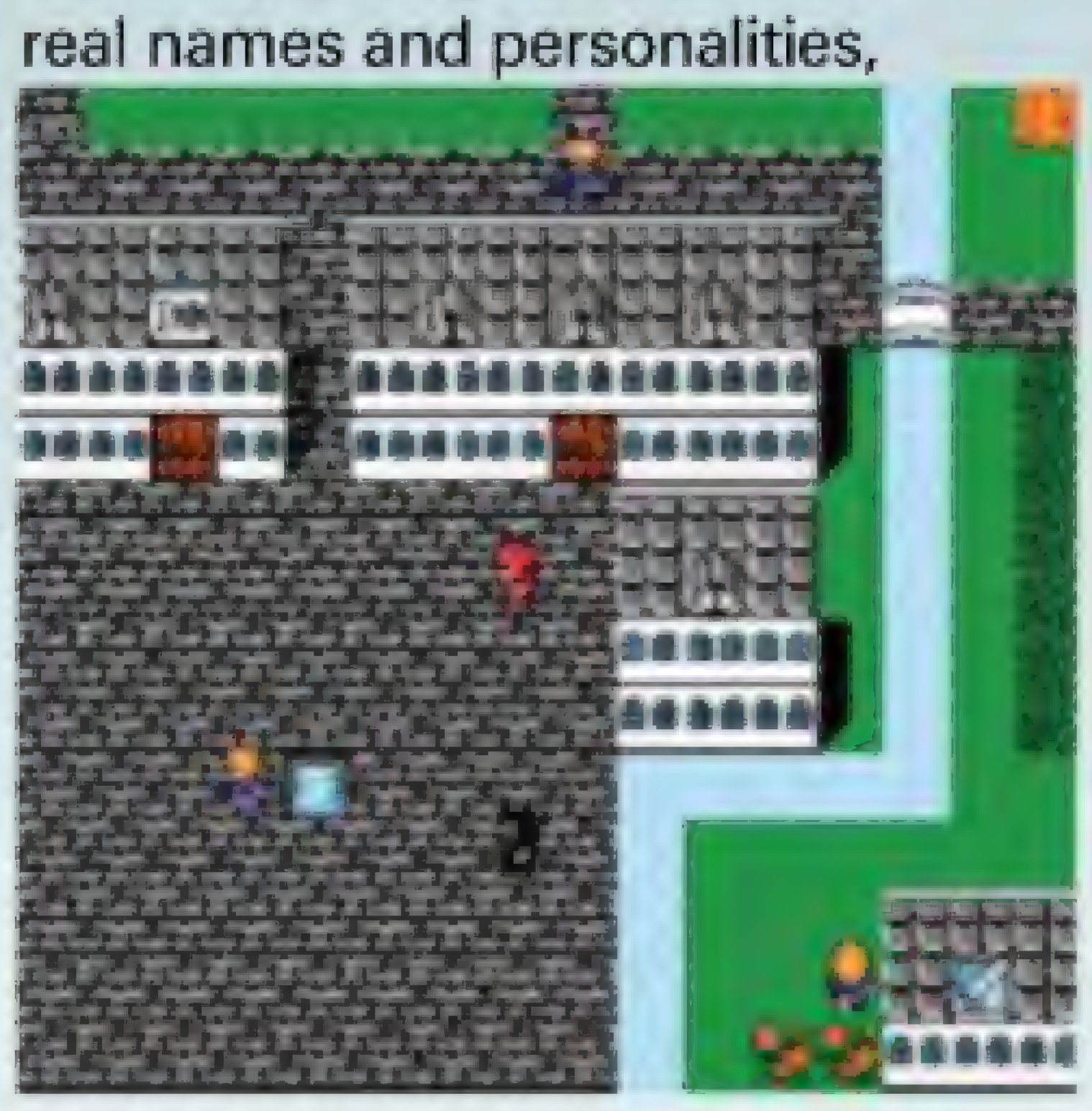


» [NES] The original *Final Fantasy* stood out in a mainly straightforward, creatively safe genre.

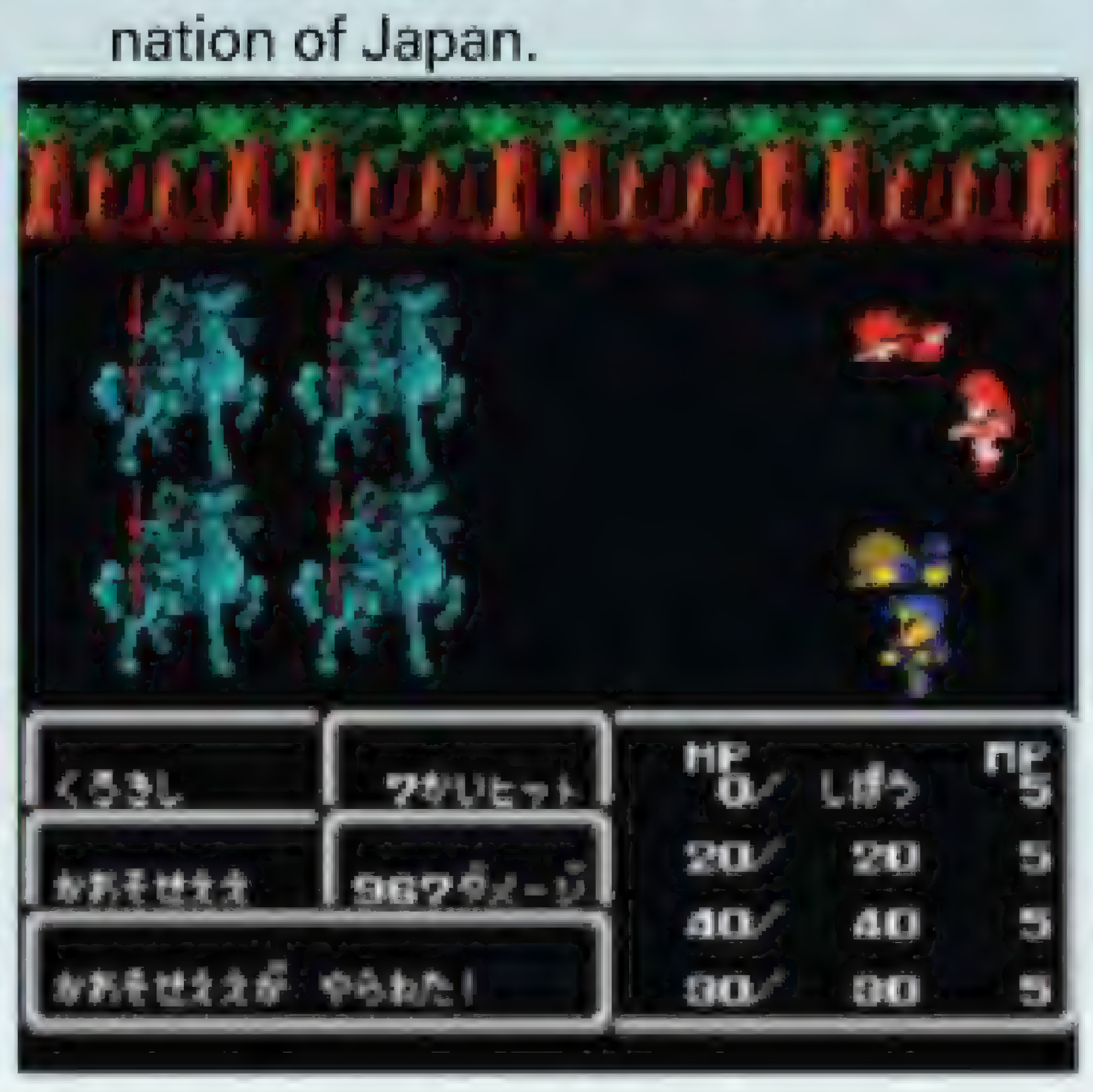
1988 (Japan)

Final Fantasy II (NES)

■ Establishing the series' radical notion of starting again between entries, creating an all-new world and characters, *Final Fantasy II* was a hardcore follow-up with a daring (and polarising) levelling-up system that worked depending on your actions in battle. Progressive, yes, but wickedly hard to master. The sequel was significant in many regards, most notably expanding the idea of story in the series by giving the characters real names and personalities, with Yoshitaka Amano's character designs resonating with audiences. This helped forge the franchise's long-term trademarks of creating camaraderie between your party members, not just mechanically but also narratively. On top of this, well-known iconography of the series like the yellow bird-like Chocobos, as well as a recurring character called Cid, made their official debut with the second title, which went down extraordinarily well in its home nation of Japan.



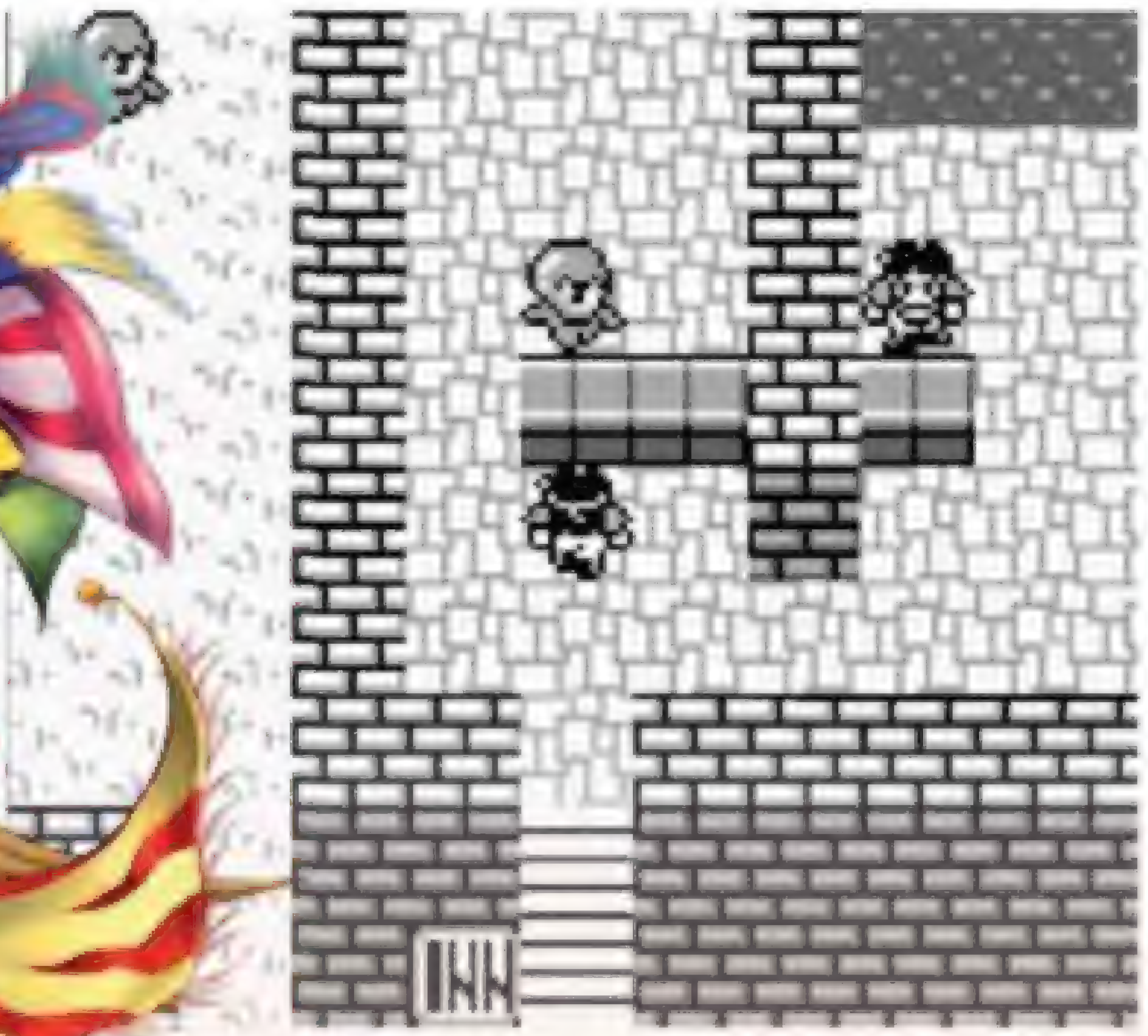
» [NES] The game first arrived in the UK on GBA.



1989-1991 (Japan)

The Final Fantasy Legend series (Game Boy)

■ Technically part of the *SaGa* series, Square renamed this series of Game Boy RPGs with the *Final Fantasy* moniker in order to gain more attention from a Western audience. Two sequels were released in the ensuing couple of years.

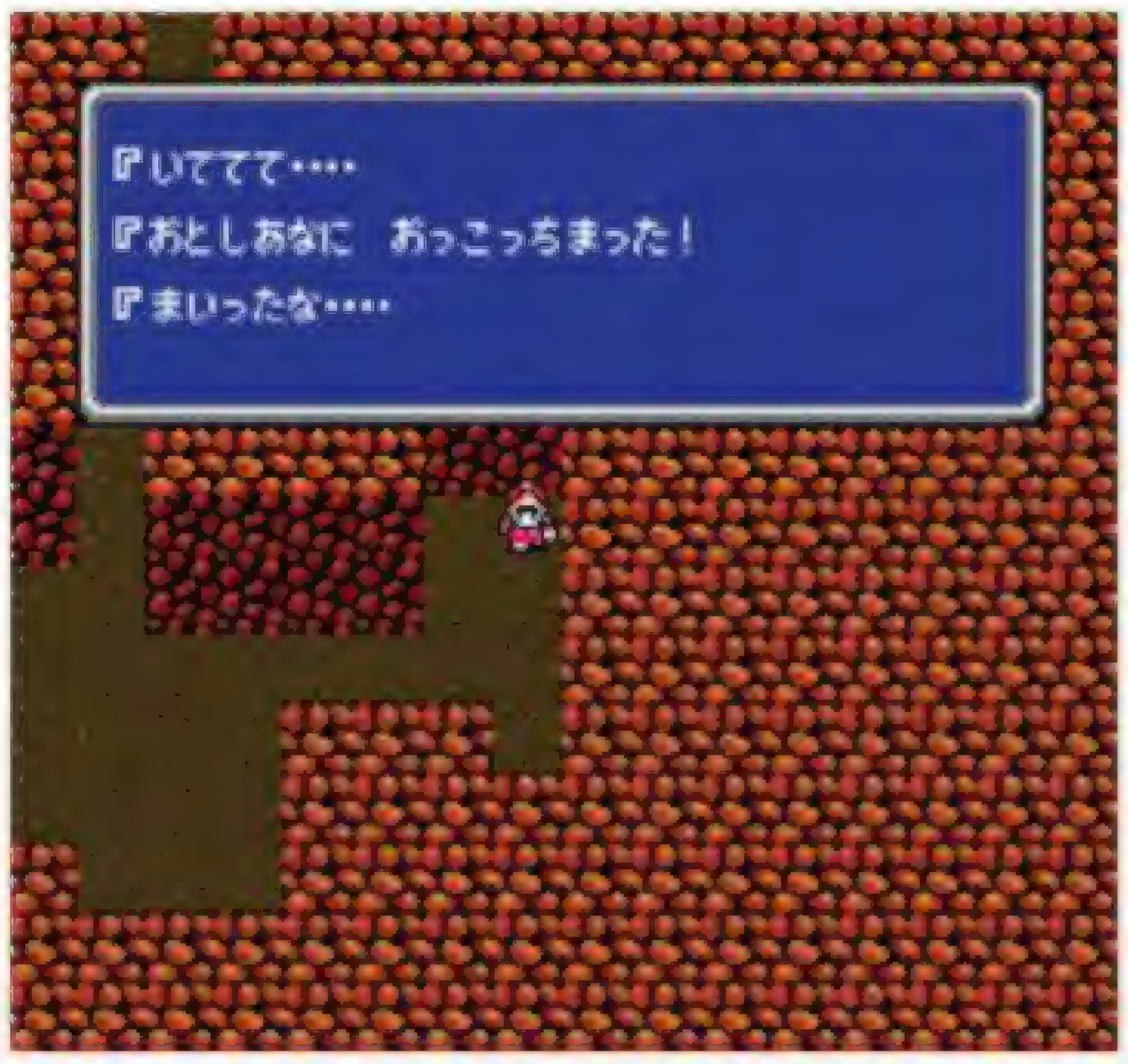


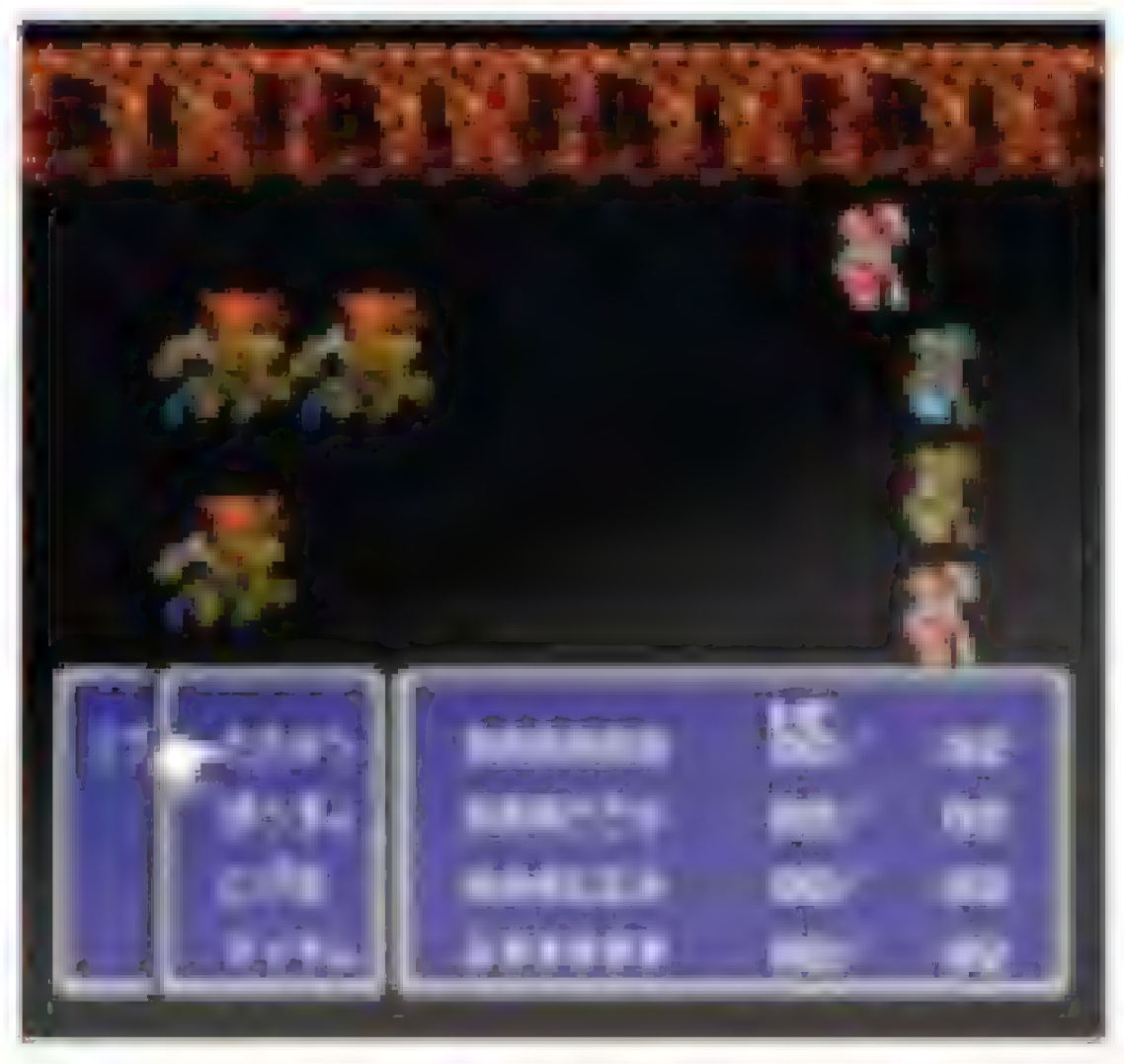
» [GB] *Final Fantasy* arguably became a dumping ground for spin-offs later on, but *Legend* was worthy of the name.

1990 (Japan)

Final Fantasy III (NES)

■ Generally considered a bit of a step sideways for the series, *FFIII* is considered to lack as compelling a story, as it reprised a lot of the same ideas as the original, though it did further develop the combat's class system to accommodate a more complex approach. Not released in the west until the DS version years later, *FFIII* was saddled with a somewhat unimaginative world, and often ridiculous difficulty curve, culminating in the incredibly difficult boss fight gauntlet towards the end. Today, the DS re-release exposes signs of a waning formula, even with the fairly freeform class system. It was clearly time for another change.





» [NES] The third game is only really notable for its class system, which progressed nicely from the original's.

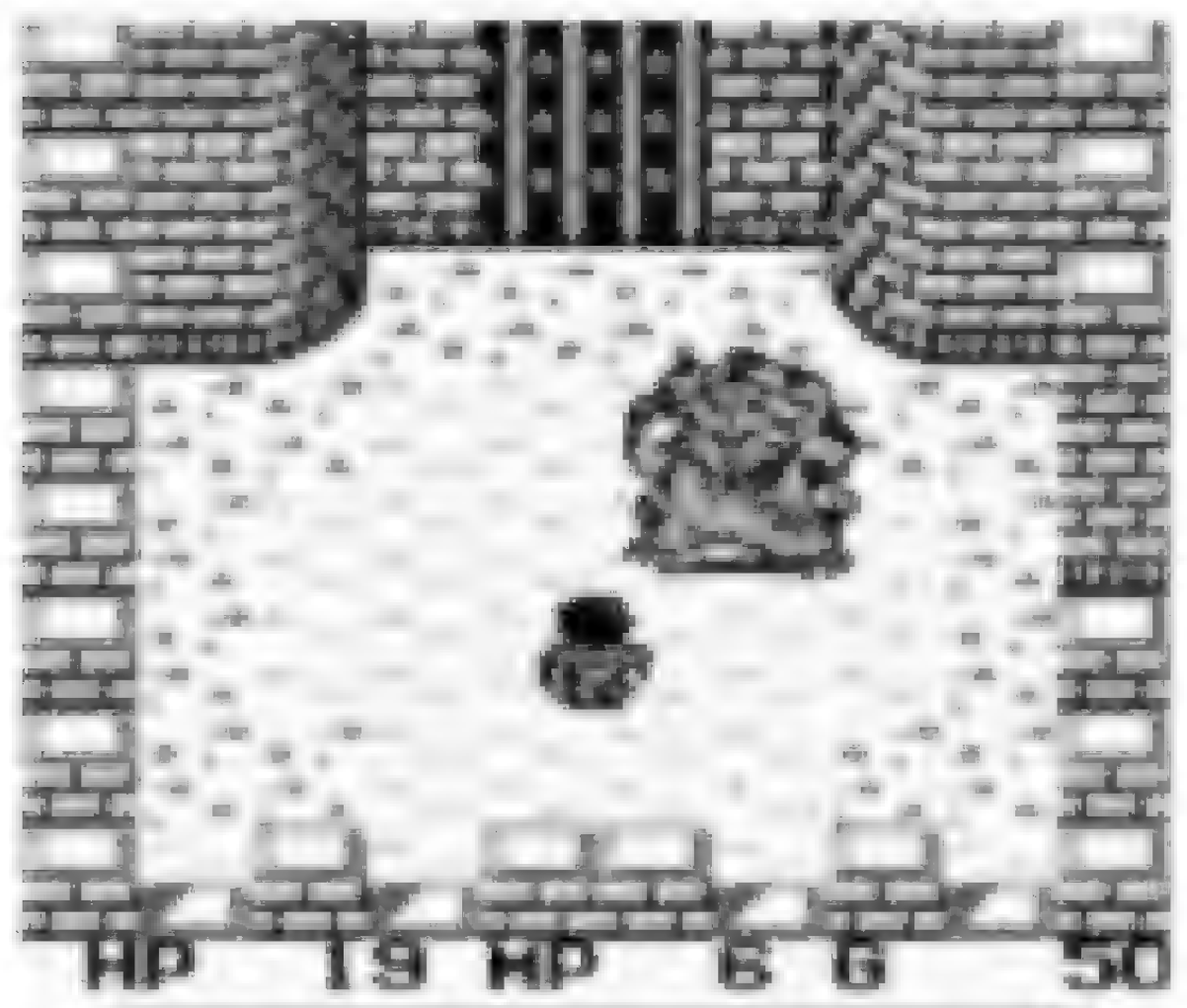
» [NES] By this point, the standard *Final Fantasy* tropes were set, including storylines that use crystals as a McGufffin.

1991

Final Fantasy Adventure

(Game Boy)

■ Confusingly, this was the second Square RPG to use the franchise's title as a marketing hook. We now know this as the starting point of the *Mana* series. This also technically marked the debut of Yoshinori Kitase on a *Final Fantasy* game, whose work on *FFVII* in later years would make him custodian of the franchise.



» [GB] It took the *Final Fantasy* name for this great RPG to get a translation.

1991 (Japan, US)

Final Fantasy IV (SNES)

■ *FFIV* felt like Square was starting afresh on the SNES, creating a milestone in the storytelling element of the series and the grand depiction of its setting. Even with the new hardware, however, the developers faced technical restrictions that saw a significant amount of content cut, yet this restraint kept the pacing of the adventure so brisk that it had a positive effect on the overall experience. The introduction of the Active Time Battle system, which transformed turn-based combat into reactive encounters, once again distinguished the series' ability to switch direction from its RPG contemporaries.

The game's operatic story focuses on a dark knight, Cecil, who is exiled from the kingdom of Baron for questioning the king's immoral request of raiding civilised towns. Cecil is soon joined by a diverse band of warriors, who face the power-hungry villain Golbez in an adventure that takes the player's party to an orbiting moon in order to stop him. The positive response to evolution in both characterisation and gameplay mechanics would reshape *Final Fantasy* over the next two decades. As this was the second title in the series released in the US, Square renamed it *Final Fantasy II* there.

1992 (Japan)

Final Fantasy V

(SNES)

■ The fifth game's progression system was another benchmark for *Final Fantasy,* elaborating on the job options from *FFIII* but layering on additional abilities depending on your choices, as well as the ability to combine classes in order to create a specific, ideal party of fighters. It was the most eminently customisable entry in the series so far.

The story was relatively uninspired, however, with a comparatively dull set of characters compared to *FFIV*'s morally-challenged heroes (protagonist Bartz is especially naff), along with an utterly clichéd villain in ExDeath. The lack of an initial Western release meant it was still fairly obscure within the trajectory of the series. This would mark the final time Sakaguchi directed a *Final Fantasy* title – he would serve instead as producer and designer afterwards.

> **"A massive, technically ambitious adventure set in a steampunk-infused world"**

1993

Final Fantasy: Mystic Quest

(SNES)

■ The first *Final Fantasy* released in the UK (though the name was dropped here) is perhaps unfairly overlooked, featuring an action-oriented style of play that sat at odds with the rest of the series, with a focus on environmental interaction that could have yielded a different path for the franchise had it been more successful. It's a little strange, playing a *Final Fantasy* game without a numbered HP meter, with the added ability to jump.

Yes, you Son!
Only you could be the Knight spoken of in the Prophecy...

Ho?

» [SNES] Weirdly, the *Final Fantasy* name was dropped in Europe, where it's known as *Mystic Quest Legend.*

1994 (Japan, US)

Final Fantasy VI

(SNES)

Magi Tek
Item
?????
WEDGE
VICKS
63
60
62

WEDGE: Hard to believe an Esper's been found intact there, 1000 years after the War of the Magi...

» [SNES] Nice *Star Wars* reference, though Biggs was mistranslated as Vicks in *FFVI.*

■ Squaresoft had mastered the 2D RPG on SNES, and the wonderful *Final Fantasy VI* was the fruit of its labour: a massive, technically ambitious adventure set in a steampunk-infused world. Its twisty narrative was grounded with a sort of magical realism, and was extremely dark compared to previous entries in the series. *FFVI* demonstrated that Square's ability to tell such tales had come a long way in just the three years since *FFIV*'s release. Featuring a gigantic cast of rich characters, the sprawling tale encompassed multiple strands of storylines, a slew of optional side-quests, and a world map that was literally redrawn after iconic villainous clown Kefka sent it into chaos.

Yet it wasn't just a step up in storytelling and presentation. *FFVI* afforded players more equipment-based options in customising characters thanks to the Esper system, which opened up the possibility of teaching every character powerful spells in order to succeed in the tougher, later stages of the story. Combined with the emotional characterisation, *Final Fantasy*'s storylines had become increasingly vital over the trifecta of numbered SNES titles, and many cite *FFVI* as their favourite in the series.

1997

Final Fantasy VII

(PSone)

■ The *Final Fantasy* that changed everything. The seventh instalment saw Square ramp up its staff and budget to tackle a 3D chapter in the series, which switched to the emerging PlayStation hardware for its CD-ROM capabilities. Looking back, this was an enormous risk, yet the rising culture of PlayStation and *FFVII*'s cinematic presentation secured it an astonishing level of hype prior to release. Yet it was story that would seal *Final Fantasy VII*'s status as an era-defying piece of entertainment.

With a sci-fi yarn that focuses on abusing the planet's resources, and the titanic repercussions of that, *FFVII*'s cast of characters, headed by Cloud but accompanied by equally beloved figures like Tifa, Barret, and Vincent, were key to its resonance with this new audience, while scary primary antagonist Sephiroth brought a *Jaws*-esque tension to the unfolding of this 60-hour experience. Of the many moments that underlined *FFVII*'s impact, it was of course the shock death of Aeris at the climax of the game's first act that would be talked about frequently in the ensuing 17 years.

FFVII is a triumph in gameplay, too, its Materia system offering a new way to hone character abilities, while the 3D world map brought a new level of immersion to the all-important exploration element of the series. The vision of *FFVII* was triumphantly ambitious, and suddenly the *Final Fantasy* brand was a global phenomenon.

1997-present

Chocobo series

(Various)

■ A light-hearted offshoot of *Final Fantasy* focusing on the odd yellow birds, the *Chocobo* games have tended to focus on racing and dungeon crawling, but the undoubted highlight has to be the card-collecting in *Final Fantasy Fables: Chocobo Tales* on the DS.

1997-present

Final Fantasy Tactics series

(PSone, PSP, DS, GBA)

■ Square turned its hand to grid-based strategy RPGs and yielded enormously positive results with 1997's *Final Fantasy: Tactics*, which hit the same high standard as the main series. With three main instalments and a remake, the superb *War Of The Lions*, which is best played on PSP, Square successfully expanded the franchise for the first time into a (slightly) different genre. *Final Fantasy Tactics Advance* opened up the format to new players, yet was equally fiendish in its difficulty, while its DS sequel *A2: Grimoire Of The Rift* continued these Ivalice-set spin-offs.

1999

Final Fantasy VIII

(PSone)

■ Following its largest hit ever with *FFVII*, the company took a big risk with *FFVIII*, incorporating a totally different battle system based on 'Junctioning', which was essentially harvesting spells from enemies and attaching them to stats to give them a boost. The intention of the developers was to make players actively think about the combat system, though this unusual alteration to the balancing of progression naturally divided players.

With a story about a cadet school fighting a nation governed by a sorceress – eventually, as you find out, from across time – *FFVIII* was certainly an anime-inspired tale. It was engrossing, if not quite as refined as previous offerings, with character Squall typifying the grumpy, amnesiac emo hero, while his antagonistic opposite, Seifer, represented the mirror image of that archetype. Its European-inspired world deliberately contrasted *FFVII*'s bleak setting, though, helping to make *FFVIII* an equal experience to its predecessor, even if the game didn't have the same cultural impact.

Motomu Toriyama

WORKED ON:

Final Fantasy VII (Event Planner)
Final Fantasy X (Director)
Final Fantasy X-2 (Director)
Final Fantasy XII: Revenant Wings (Director)
Final Fantasy XIII (Director)
Final Fantasy XIII-2 (Director)

What is your personal opinion on the franchise and its evolution?
I personally regard *Final Fantasy* as content that invariably offers experiences of the finest story and gameplay supported by state-of-the-art game technology and completed with high-quality graphics. We have never been bound by restrictions of the RPG genre and always made our best efforts to produce a game with a unique universe. One of the reasons for *FF*'s long-standing popularity is probably the fact that each title in the series has taken care to tell a truly human drama which can strike a chord with humanity's universal emotions while pursuing new elements to be included in the game.

What do you like about the franchise? What would you like to change in future?
The franchise has survived 25 years, and each title has had to face a different set of challenges because they were developed with different game concepts, for different platforms and by different staff in the development team. This actually helps us as developers to continue making games with a fresh mind and we find joy in being able to express our creative ideas. As a result of this approach, each *FF* title has won many fans and, thanks to them, we can set ambitious targets for the next project to express our own ideas while, of course, trying our very best not to disappoint.

What are your favourite moments from the series?
My favourite moment is the opening scene from *FFVI*, where Magitek Armors walk up a snowy mountain. It was still on SNES at the time. It is a classic scene to me as it gives you a feeling that you are about to play a dramatic game. The soft music by Mr Uematsu was brilliant, too. In fact, *VI* was the last *FF* title I enjoyed purely from a player's perspective, because I started being involved in the series as development staff from *FFVII* onwards.

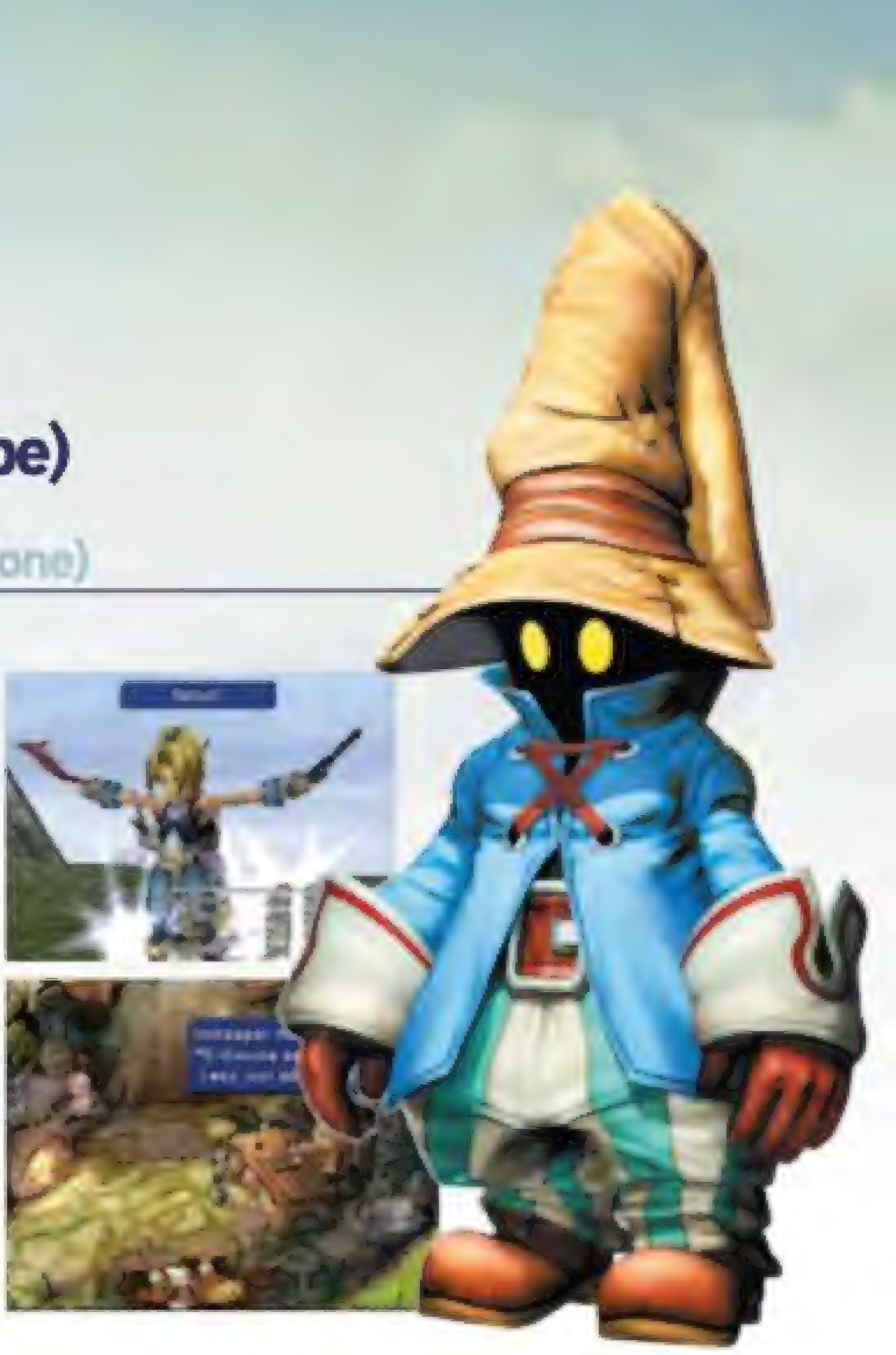
In what ways have previous titles influenced your own *Final Fantasy* games?
FFVI was an SNES title and I sincerely admire all the careful work put in by my senior developers back then. They provided a foundation for *Final Fantasy* with, for example, "manually drawn graphics with a great attention to every detail to demonstrate craftsmanship" and "richly dramatic direction including music". The policy of *Final Fantasy* is to bring out each creator's individual capability to fully overcome any restrictions of the console. I would call it an *FF* gene and it will continue to be found in any *FF* titles I get involved with in future.

Why has the *Final Fantasy* series stood the test of time?
What I regard as our mission is to deliver the most "appropriate" *Final Fantasy* titles which go along at the time and suit the given environment for playing games.

Can you recall an anecdote from working on the games for us?
With *FFXIII-2*, we carried out user tests at early stages of the development process as an experimental attempt. We were aware that the previous game, *FFXIII*, had drawn criticism from gamers who thought the game progression was too linear. To deal with it, we established a new structure for *FFXIII-2*, which would enable us to accommodate consumers' views and incorporate necessary changes while the development was still underway. Each of the *FF* titles has many loyal fans and they support the project as much as us, the development staff. I am determined to collect their voices and feedback on websites and learn lessons from them for future projects. That is the way we develop games and I intend to stick with it.

2000 (Japan), 2001 (Europe)

Final Fantasy IX (PSone)



■ Sakaguchi described *FFIX* as "a reflection of all the previous works in the series", and it shows, returning to the medieval style of world seen in pre-*FFVI* titles but with a contemporary sheen. There are a lot of visual nods to earlier entries, particularly in the design of Vivi, the cute-but-dangerous child wizard character in *FFIX*. Centred on a group of characters caught between two warring nations, it has a swashbuckling adventure quality, and a little less melodrama than *VII* and *VIII*. Its battle system, though, was relatively antiquated, and being released at the back end of the console generation meant that it was the lowest-selling entry since the SNES days.

2001 (Japan, US), 2002 (Europe)

Final Fantasy X (PS2)

■ *FFX* offered experimental character progression and the strongest realisation of a digital setting yet, thanks to its all-3D environments. With Asian landscape-inspired design, the tenth instalment had the kind of art direction not seen before in a game, aided by the transition to PS2. The sense of place in *Final Fantasy X* was remarkable, even if abandoning the world map concept made for a more linear main quest, with previous locations changing as you revisit them later on. *X*'s combat system was a little safer than before, a slower-paced turn-based venture, yet the level of customisation behind everything – weapons, abilities and even summons – was at its deepest. The Sphere Grid literally let players create the characters they wanted to, structuring progression like an enormous boardgame where experience buys you moves around it.

Final Fantasy X's story is overshadowed by uneven voice-acting and a sometimes strange translation, despite being thematically rich. It sees a fictional religion, Yevon, using a giant monster known as Sin to oppress the population, by scaring them into worship and away from technology. Protagonist Tidus, taken 1000 years away from his home of Zanarkand at the start of the game, soon finds that the reality behind Sin is intrinsically linked to his past.

2002-present

Kingdom Hearts series

(Various)

■ Born from an elevator conversation between Disney and Squaresoft execs in Japan (they shared the same building) *Kingdom Hearts*' pitch was originally *Final Fantasy* meets Disney, with cameos and music to match in this ultimate nuts-and-gum combo of fan service. Its first instalment remains the best and most comprehensible of the series, now deep in its own endless list of spin-offs.

2003 (Japan, US), 2004 (Europe)

Final Fantasy X-2 (PSone)

■ Notable for being the first direct sequel in the series, *X-2* threw out the serious tone of its predecessor in favour of a sickly, anime-style horror show, which made the whole thing feel a little like a straight-to-DVD sequel, despite a return to the job system for the first time since *FFV*. A massage mini-game and an eviscerated version of *FFX*'s wonderful aside Blitzball were among its biggest crimes.

» [PS2] Putting the *Final Fantasy X* heroines in skimpy clothes wasn't enormously progressive.

2002 (Japan), 2004 (US)

Final Fantasy XI

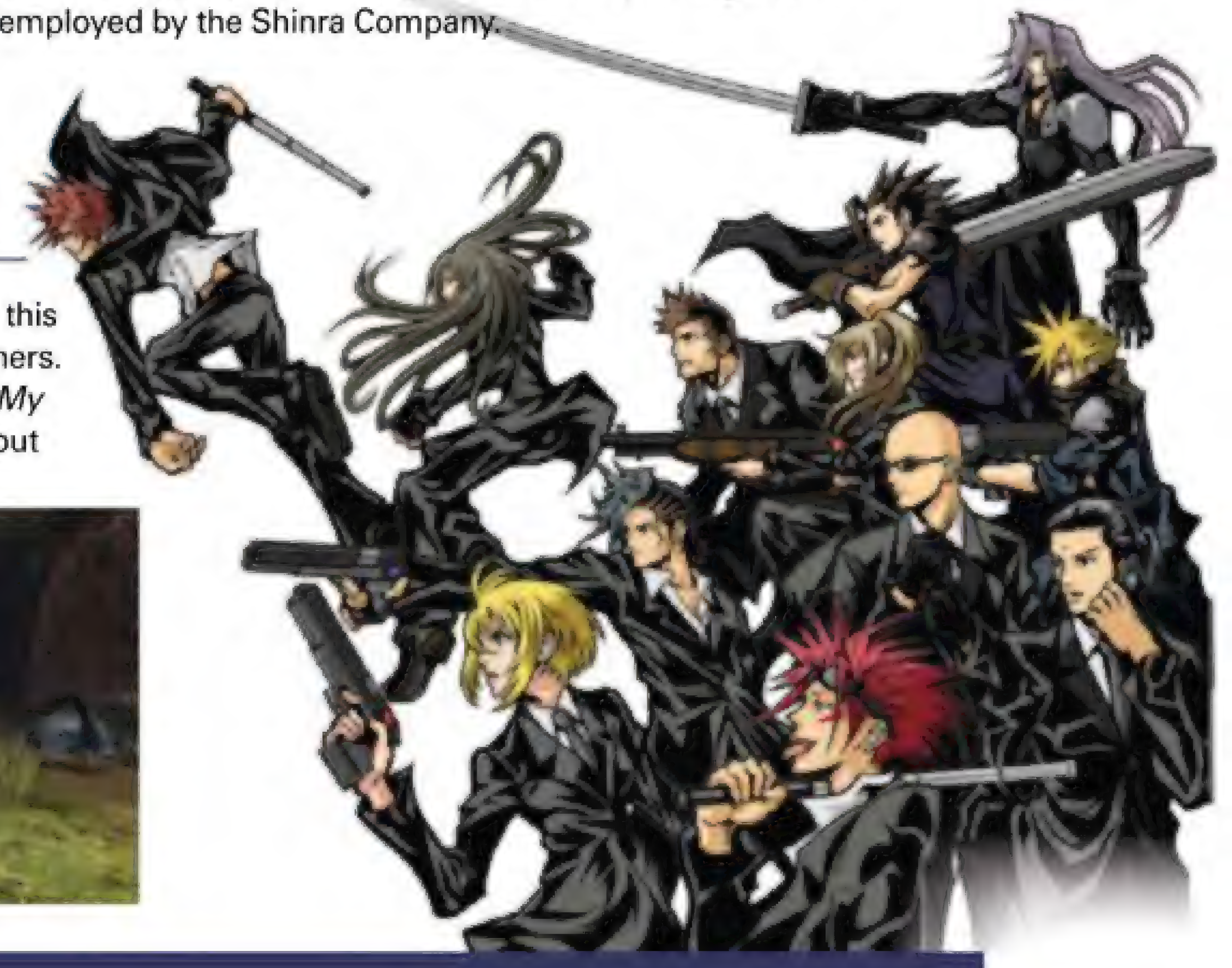
(PS2, PC, Xbox 360)

■ *FFXI* took the job systems of past games and brought them to the MMORPG stage, in an entry that only attracted a fraction of the series' millions-strong fanbase – about 500,000 at its height. Still, that's all a publisher needs for a successful online RPG, and Square Enix recently declared the eleventh game as its most profitable *FF* title ever. The PS2 version, which required the bespoke Sony hard drive, was never released in the UK.

2004 (Japan)

Before Crisis: Final Fantasy VII (Mobile)

■ A mobile phone-bound, Japanese-only episodic action RPG, this is definitely the most niche title in the *Compilation Of FFVII* anniversary project, focusing on the morally ambiguous Turks employed by the Shinra Company.



2003-2010

Final Fantasy: Crystal Chronicles series (Various)

■ Marking Square Enix's return to Nintendo platforms after opting for the PlayStation with *Final Fantasy VII*, *Crystal Chronicles* was a team-based action RPG of sorts that didn't really have a lot in common with *Final Fantasy*, but proved a good match for the GameCube regardless. The first game was noted for its smart (if demanding) integration of GBA connectivity, but subsequent instalments have gotten increasingly arbitrary in their relationship to the franchise. The *Zelda*-esque *Crystal Bearers* on Wii, and tedious cross-platform DS and Wii fluff *Echoes Of Time* marked particular lows for this consolation prize to Nintendo platform owners. *Ring Of Fates* (DS), *My Life As A King* and *My Life As A Dark Lord* (both WiiWare) round out this sub-series.

» [Wii] *The Crystal Bearers* was a poor attempt to ape Nintendo-style action adventures.

INTERVIEW

Yoshinori Kitase

WORKED ON:

Final Fantasy V (Field planner)
Final Fantasy VI (Director, main scenario)
Final Fantasy VII (Director, story)
Final Fantasy VIII (Director)
Final Fantasy X, X-2, XIII, XIII-2, Compilation of FFVII (Producer)

What is your personal opinion on the first entry, looking back?

While I pay my respects to those who created the first *Final Fantasy* 25 years ago, I am excited that the series keeps changing.

What do you like about the series?

I like the lack of restrictions from the previous titles. I believe that the transition from *FFI* to *FFII* determined the fate of the following titles. I personally support the fate as it does not force you to take over the story or mechanics of the previous title and allows the series to evolve constantly.

What are your favourite moments from the series?

I have lots but am particularly fond of two scenes from *FFVI*; the Opera and Daril's Tomb.

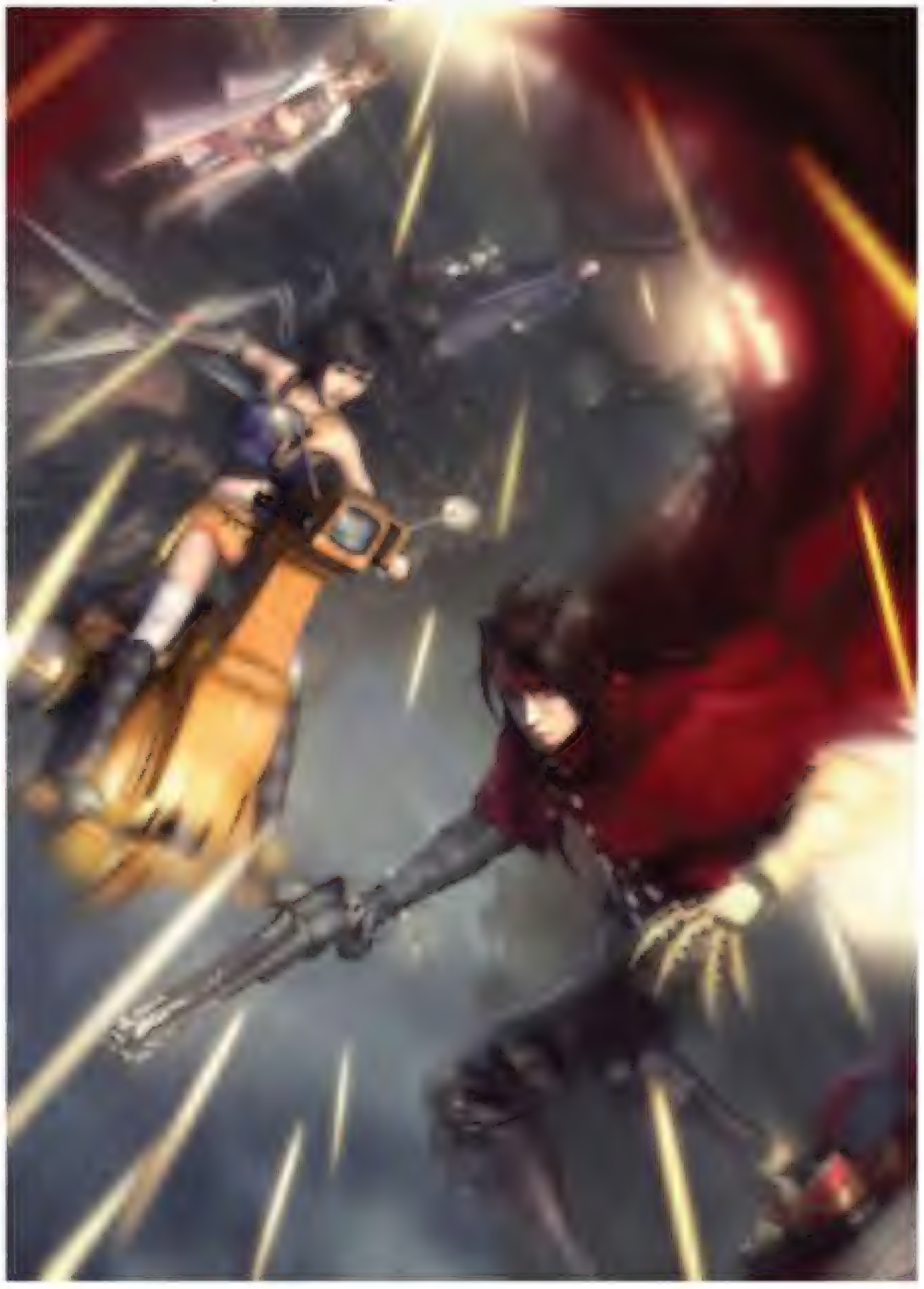
In what ways has it influenced your own games?

Songs became an important feature in later *FF* titles and the Opera scene may have been the pioneer in this regard.

2005 (Japan), 2006 (UK)

Dirge Of Cerberus: Final Fantasy VII (PS2)

■ Square Enix got out of its depth with this third-person shooter contribution to the *Compilation Of Final Fantasy VII* anniversary project, a spin-off centred around Vincent Valentine that grew repetitive very quickly thanks to its poor pacing and mechanical flaws. Despite that, the odd decent reference to *FFVII* helps to soften the blow, but it's ultimately little more than a beautiful curio for the fan that just can't let go.



2006 (Japan), 2007 (UK)

Final Fantasy XII (PS2)

■ Fraught with behind-the-scenes troubles – particularly the departure of *Vagrant Story*'s Yasumi Matsuno as director due to apparent health concerns – *Final Fantasy XII* was subject to several delays, and, having taken over twice as long as *FFX* to complete, was no doubt an expensive bookend for the series' life on PS2. The resulting game is a fascinating concession to an open MMO-style of design. A critical hit, some traditional *Final Fantasy* fans were put off by its slow-paced real-time combat – which was based on presetting commands in a system known as Gambits – and fairly boring *Star Wars*-esque story, though the elimination of random battles was deservedly praised. Its main narrative weakness came in the form of Vaan, perhaps the blandest protagonist of the series, who was relentlessly overshadowed by sky pirate, Balthier. *FFXII* was still noted as a positive sign of the franchise's long-term creative health, as well as its ability to reinvent the JRPG genre.

2007 (Japan), 2008 (US, Europe)

Crisis Core: Final Fantasy VII (PSP)

■ A candidate for strongest spin-off, *Crisis Core* tells the story of Sephiroth's descent into madness through the eyes of Zack, Cloud's friend and mentor, crossing over with flashbacks of *FFVII* to complete that story. An action RPG that clearly takes its cues from *Kingdom Hearts*, the tale at the centre of *Crisis Core* is engaging because of your memories of *FFVII* – that Zack, your character, is betrayed and then killed by his former employer, Shinra. The entirety of this well-produced PSP title builds up to that climactic, sad moment, and even allows you to play through that inevitable demise. It makes for an uneasy tale that fills in the gaps of *FFVII* without over-embellishing them, a love letter to fans of its most famous instalment.

» [PSP] *Crisis Core* is yet another underappreciated PSP classic.

2007 (Japan, America), 2008 (Europe)

Final Fantasy XII: Revenant Wings (DS)

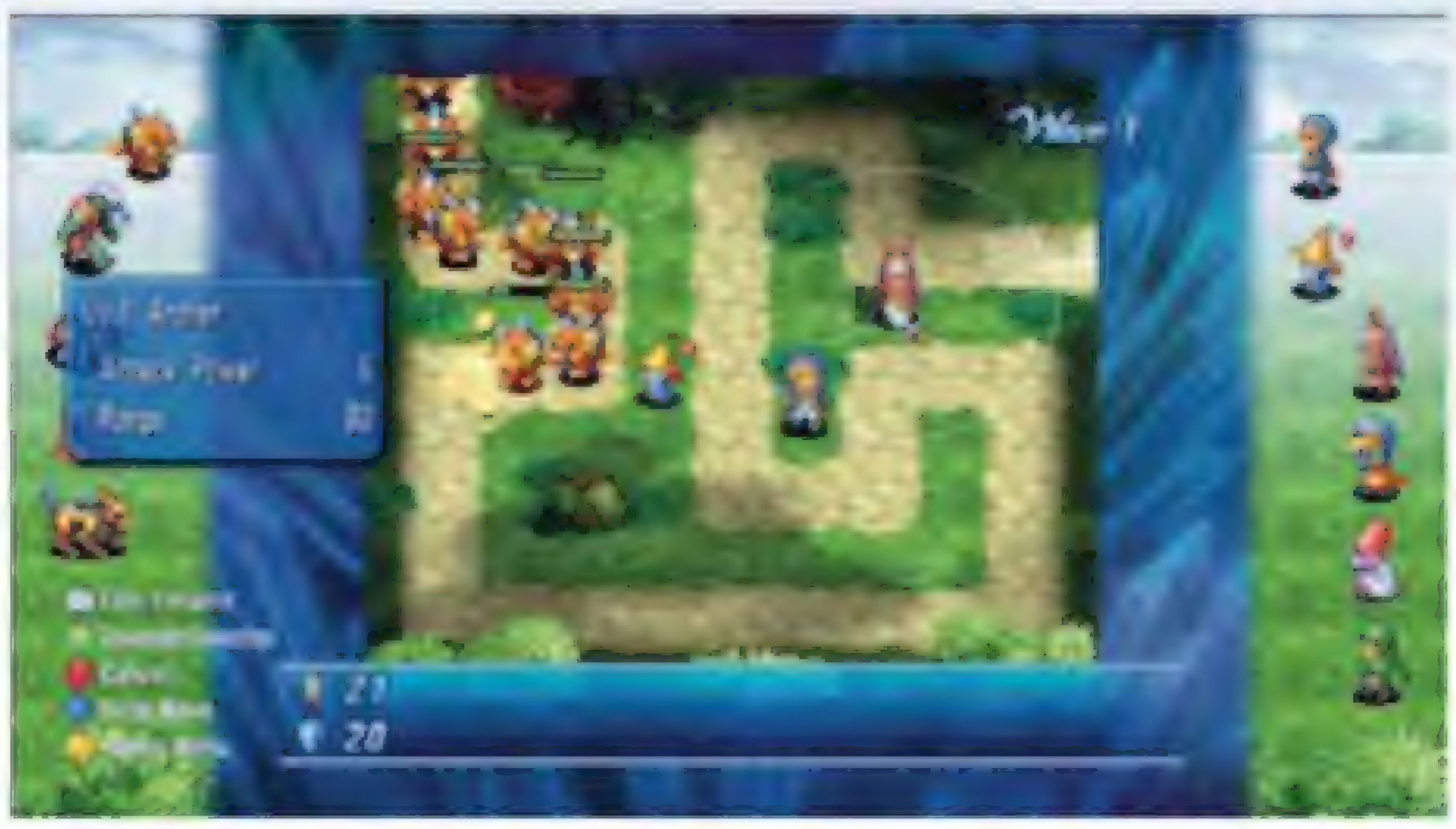
■ *Revenant Wings* is a more accurate example of a direct *Final Fantasy* sequel than *X-2*, following up *XII* with an action-heavy strategy game, yet still capturing the breadth of the world in that gorgeous isometric form.

Magicks/Abilities
Gambits

2008

Crystal Defenders (Various)

■ *Final Fantasy* does tower defence with relatively little panache, but it was a decent enough attempt to integrate turn-based fighting into that trendy sub-genre.



2008-2011

Dissidia: Final Fantasy series (PSP)

■ A brilliant fusion of action RPG and themed beat-'em-up, *Dissidia* placed all the heroes and villains of *Final Fantasy* against each other in a heady bit of fan-pandering. Yet there's far more to it than novelty, as it offered a generous number of storylines, an incredibly large library of *Final Fantasy* music and a meta-game of unlocking extra content through an overarching in-game experience system. Wonderful stuff, and due an HD remake.

» [PSP] The original *Dissidia* was pirated five times to every copy sold.

» [PSP] The definitive versions of both *FFIV* titles are collected together on PSP.

INTERVIEW

Takashi Tokita

WORKED ON:

Final Fantasy I (Graphics)
Final Fantasy III (Sound)
Final Fantasy IV (Game design)
FFI & II Advance Dawn Of Souls (Producer/remake planning)
FFIV Advance (Supervisor)
DS version of FFIV (Executive producer/director)
Final Fantasy IV: The After Years (Executive producer)

What is your personal opinion on the first game, looking back?

It was *Dragon Quest* that initially set RPGs in place solidly in Japan by combining elements of two major IPs, *Ultima* and *Wizardry*, with the manga culture. Following the success of *Dragon Quest*, Mr Sakaguchi had an ambition to create something which would surpass it. That is how *Final Fantasy* started. *Dragon Quest* absorbed the manga culture, whereas *Final Fantasy* was innovative in the way it introduced animation-like visual style/direction and added extra depth with sci-fi elements.

What is it you appreciate about the series?

The most distinctive and creative feature of the series is the fact that each title aimed to achieve a different set of unique goals. I find it difficult to answer the questions in a generalised manner as different creators at different times have opted for various approaches as to which areas of the previous *FF* titles should be kept in or replaced and what new challenges should be taken on.

What are your favourite moments?

Although there have been so many great scenes, if I must single one out, I would mention the opening section in the first *Final Fantasy* game. You see no title logo displayed until you have seen the prologue at the castle and, as you are about to walk over the bridge, the warriors are silhouetted while the logo comes out and the theme tune is played out… it was sensational.

In what way did this influence your own work?

I reproduced the scene in *Final Fantasy IV*. When Cecil and Kain decide to set out on their quest to wipe out monsters, the theme tune is played while the castle is displayed together with its background and a monologue. Also, the opening in *FFI* introduced a style in which the scenes and music are switched over at an individually gratifying moment rather than following a set rule, which has given an impact on all the subsequent titles of the series.

Why has this series stood the test of time?

Due to technological advances in game platforms and media, we are now in an era when it is common to develop high-capacity games for HD consoles. If compared with cinema, it would be the time when filmmakers were so enthusiastic about using CGI to present visually opulent scenes. I think that the time background makes the nature of each game so vital. As far as I am concerned, the essential parts of games are impactful concepts, and gameplay that offers a pleasant experience.

Can you share some anecdotes from working on the games?

I have witnessed numerous anecdotes over the long course of the 25-year history of the franchise and here I would like to share with you a few episodes which, to my mind, hold utmost relevance to game development of the current times.

When we developed the scenario for *Final Fantasy IV*, Mr Sakaguchi contributed basic concepts first and the staff came up with different ideas to be added. The initial scenario was too huge for the available memory and we had to cut it down to a quarter of it. We knew that no half measures would be sufficient to scale it back by 75% and had to make drastic reductions wherever possible by minimising depictions everywhere apart from the opening sequence and other particularly important scenes.

As a result of these efforts, I believe that we managed to produce a well-paced, strong and well-modulated story for the player to enjoy. Now we are fortunate enough to be able to develop games with a much larger scale in many aspects; capacity on game consoles, gameplay time, production resources, development period and staff. I think that the fortune makes it all the more important for us to have concepts which can work not only with addition but also with subtraction.

2008 (Japan), 2009 (US, Europe)

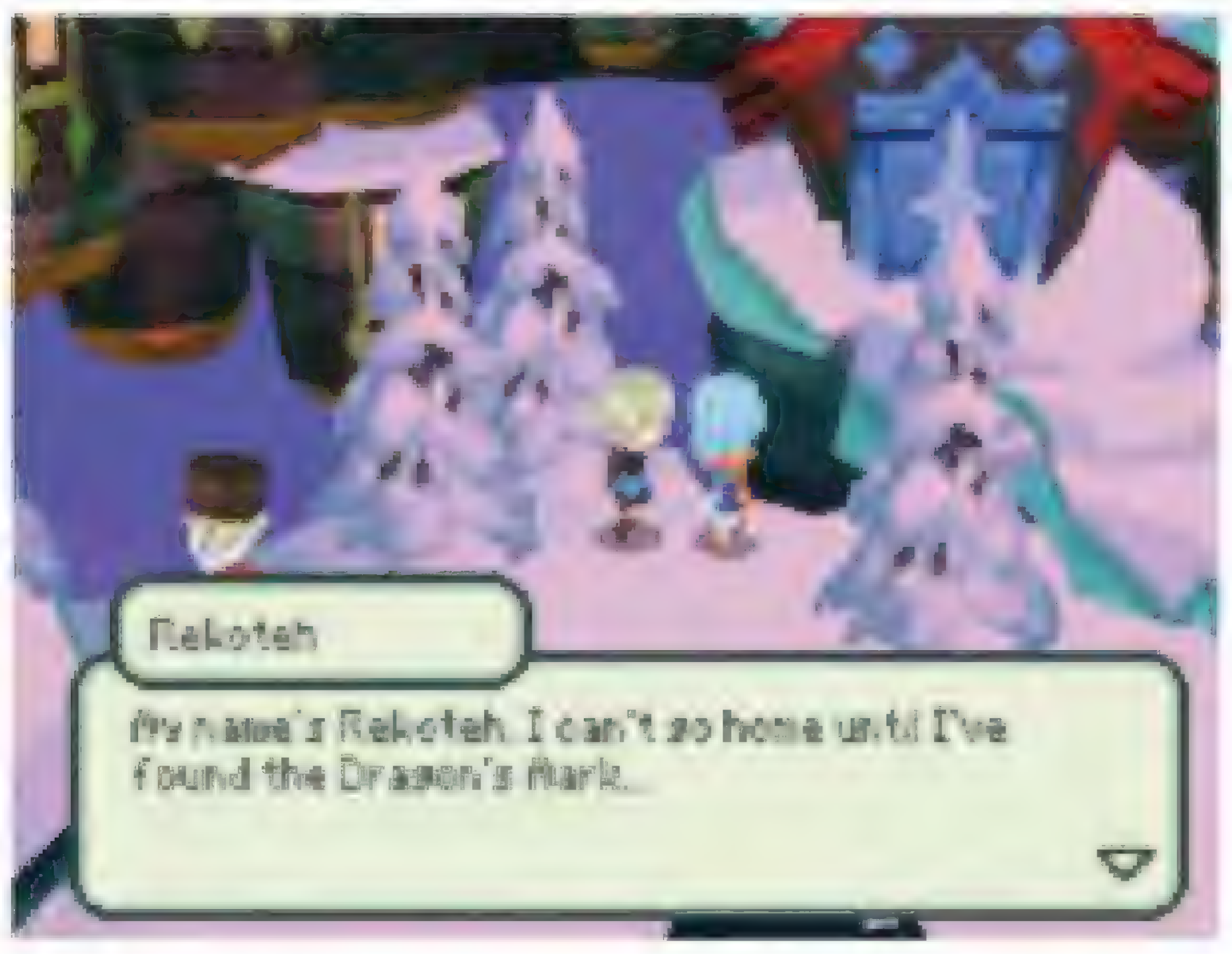
Final Fantasy IV: The After Years (Mobile, WiiWare, PSP)

■ Here's an oddity, and a first for *Final Fantasy*: a direct sequel released episodically on phones, WiiWare and in full on PSP, almost two decades after its original instalment. Built in the image of the fourth game with returning characters and a multi-stranded storyline, it's a solid nostalgia trip for fans of the series' SNES era, even if there was no real net benefit to making it look visually similar to the original.

2010

Final Fantasy: The 4 Heroes Of Light (DS)

■ A tribute to traditional *Final Fantasy* RPGs, developed by the talented people behind *FFIII* and *IV*'s DS remakes, Matrix Software, *The 4 Heroes Of Light* is a pleasantly contemporary interpretation of Sakaguchi's earlier works.



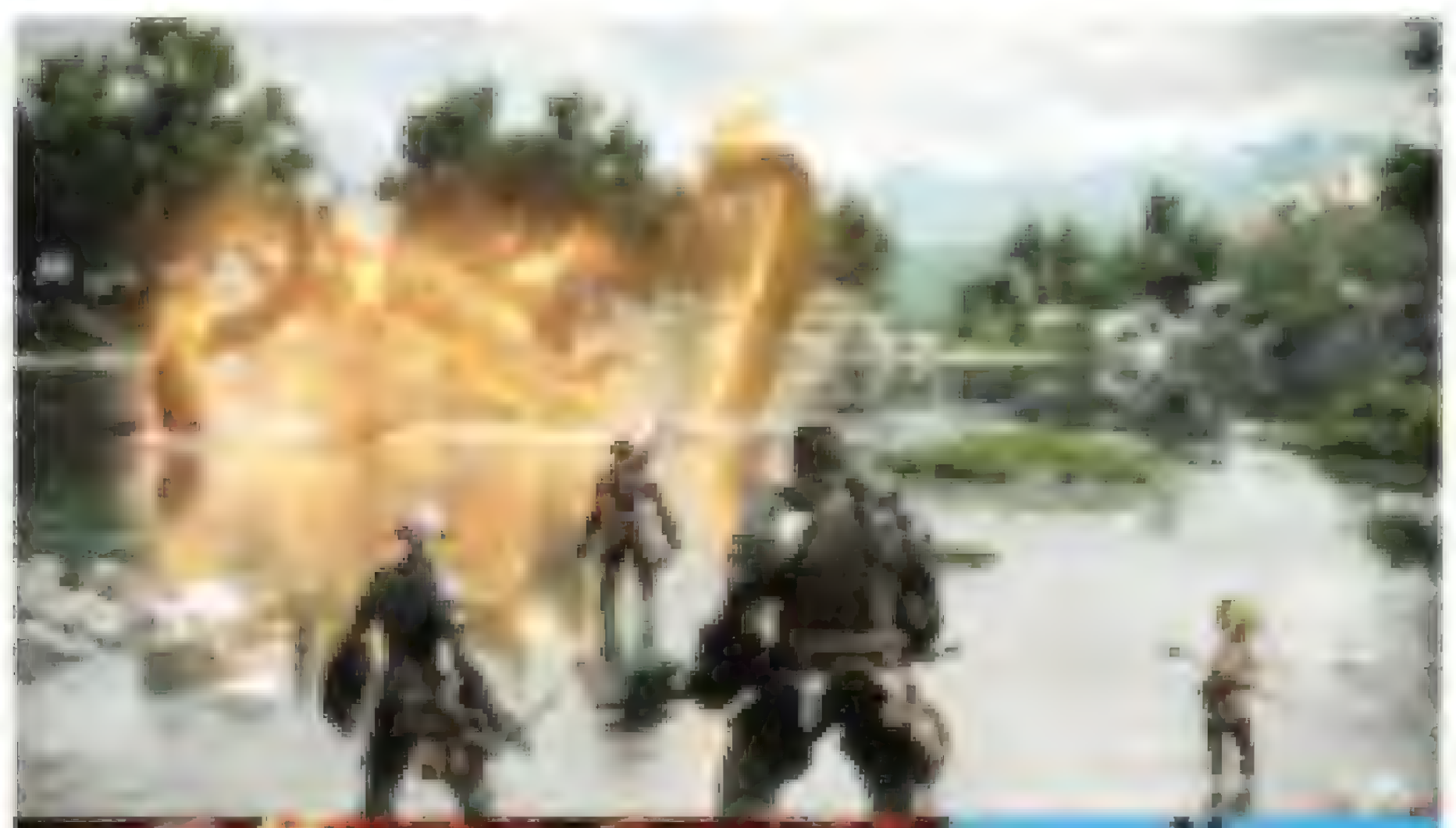
Rekoteh

My name's Rekoteh. I can't go home until I've found the Dragon's Mark...

2010

Final Fantasy XIV (PC)

■ Currently going through a substantial revamp after a poorly-received debut in 2010, *FFXIV* is yet another MMO that seems at odds with the traditional *Final Fantasy* fanbase. Its next iteration, 2014's *A Realm Reborn*, reversed that mentality and was well received by critics and fans.



2010

Final Fantasy XIII (Xbox 360, PS3)

■ The most divisive instalment of recent times, due to its overwhelming linear structure, *FFXIII* has the audiovisual hallmarks and out-there emotional storytelling of classic *Final Fantasy*, it's just all set in a beautiful, relentless corridor. A *Gears Of War* RPG, as some called it. A representation of the modern identity crisis facing the series, the game's excellent currency-based fighting system was mostly overlooked as critics honed in on the lack of deviation from the main quest. There's no debating that *Final Fantasy XIII* brought a sense of grandeur to the current generation of hardware, however, if not the progression it needed to silence the doubters.

> **“ FFXIII has the audiovisual hallmarks and emotional storytelling of classic Final Fantasy ”**

2011 (Japan)

Final Fantasy Type-0 (PSP)

■ *Type-0* is a high-end strategy action RPG hybrid that was originally part of the *Fabula Nova Crystallis* sub-series (sigh) with the *FFXIII* titles. With an *FFVIII*-style school setting and an onslaught of franchise iconography, it's basically just mean of Square Enix to tease an overseas release rather than announce one.

2012

Final Fantasy XIII-2

(Xbox 360, PS3)

■ Square Enix's reaction to the cool fan response of *XIII* was playing to the gallery, going in the other direction and creating a completely non-linear, nonsensical storyline that straddles time and space, as well as the second direct sequel in the series' history. Players take on the role of Serah, Lightning's sister from the first game, in a much lighter, shorter and easily-paced follow-up, that is perhaps too confused in its multitude of elements to be considered a true return to form.

2012

Theatrhythm Final Fantasy

(3DS)

■ *Theatrhythm* celebrates *Final Fantasy*'s 25 years through music, collecting tracks from every main instalment and retrofitting a rhythm action game around it. Beautifully presented, this is the ideal way to enjoy what every game has contributed to the overall DNA of *Final Fantasy*.

INTERVIEW

Hiromichi Tanaka

WORKED ON:

Final Fantasy (Game design: designing battle system and UI)

Final Fantasy II (Game design: designing battle system, UI, map system)

Final Fantasy III (Game design: designing battle system, UI, map system)

Final Fantasy Crystal Chronicles and Tactics series (Executive producer)

Final Fantasy XI (Producer)

Final Fantasy III (DS) (Executive producer/director)

Why do you feel the series has been so successful?
It is a series in which each title offers a universe with "swords and magic" based on different elements, which is the only thing they have in common and the creators of each game have pursued and successfully realised the most interesting features at the time.

What do you think sets this franchise apart from other fantasy series?
I like the fact that it is always possible for the creators to try and realise what is considered to be the best at the time without feeling any restrictions or obligations to relate the game to the previous title.

What has been particularly memorable about working on the *Final Fantasy* series?
The main programmer for early *FF* titles was an American guy and I had to discuss gameplay specs with him on the phone every single day. At the time my command of English was quite limited and I always felt exhausted after our long telephone conversations. We have some fond memories of working on that project together, though.

What is your favourite moment from the series?
It is the title screen in the first *FF* game, which is not displayed until you have completed the first quest, set out on a journey and walked over a bridge.

And in what ways has it influenced your own *Final Fantasy* games?
With *FFII*, we wanted to come up with something even more interesting than *FFI*'s opening I just mentioned. So, we made a battle start as soon as the game is activated but your party gets obliterated, which I thought was a nice surprise.

Are you surprised that *Final Fantasy* has stood the test of time?
I would not have thought at the time that the name of the series would be remembered after a quarter of century.

Lode Runner

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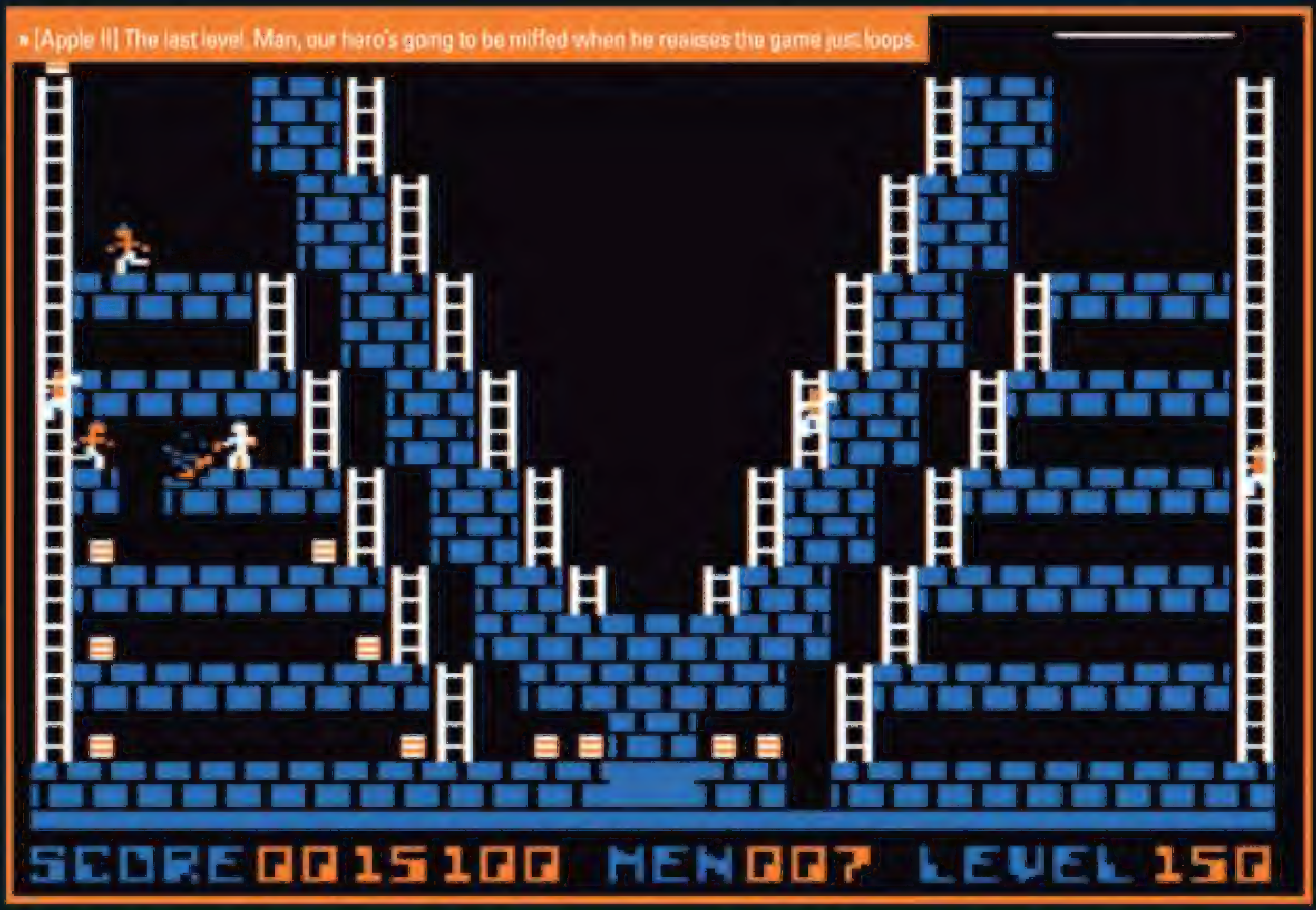
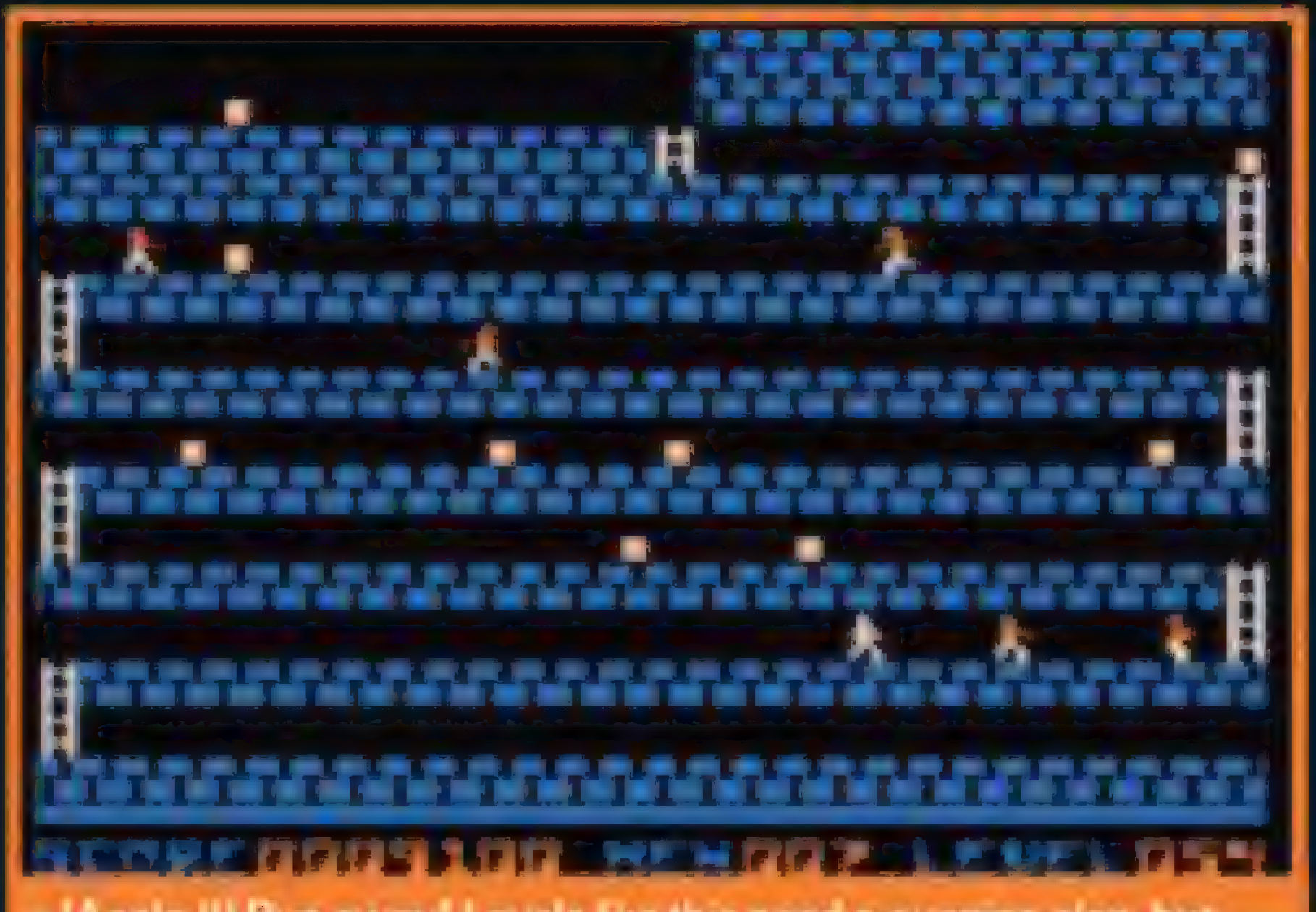
We delve into the murky past of collecting videogame gold, unearthing Lode Runner's lost origins on the Commodore PET and discovering how it made the transition to the Apple II, arcades and beyond



» [Apple II] The last level. Man, our hero's going to be miffed when he realises the game just loops.



» [Apple II] Run away! Levels like this need a cunning plan, but fleeing is a decent alternative.

> I wasn't a gamer, nor am I today – that's the irony of the thing. It was all about the beauty of the algorithm
> JAMES BRATSANOS

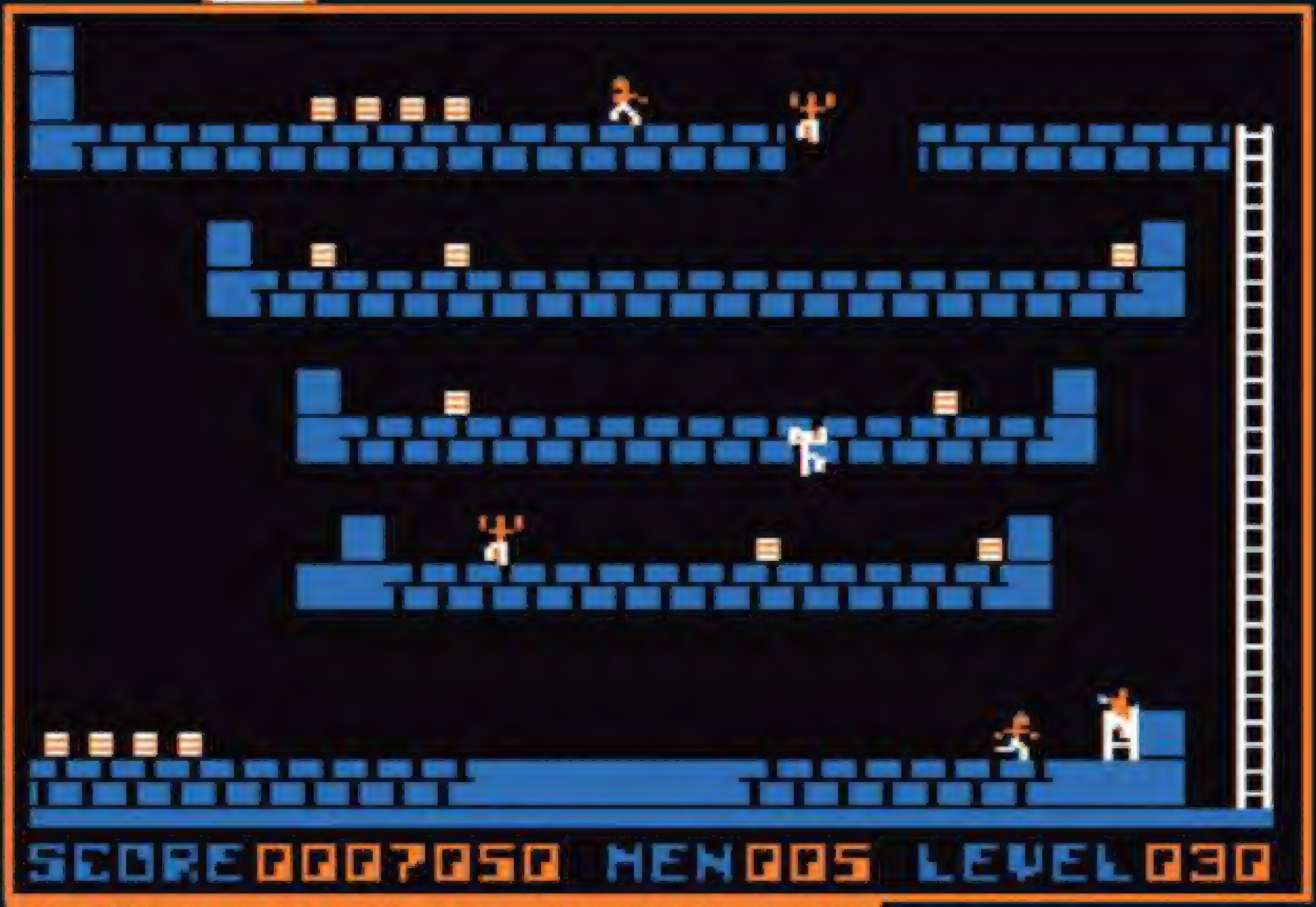
For me, it was really about the excitement of building an algorithm that could be thrown at any level, rather than pure gameplay. I wasn't a gamer, and nor am I today – that's the irony of the thing. It was all about the beauty of the algorithm." James Bratsanos is recalling his early programming days, holed up in high school with a Commodore PET no-one else was using. His surprisingly lenient maths teacher just let him get on with it, and James, having devoured a book on BASIC games, wanted to make something "a little more exotic."

A friend had returned from an arcade, excited about a game. "He didn't explain it well, and I took creative liberties and assumed I understood what he meant. So for certain elements, I completely misinterpreted it," laughs James. But with this vague direction, he devised a game based on you "trying to collect things while monsters were chasing you." To James, it was obvious to fashion levels from platforms and ladders, because "anti-gravity didn't seem that big back then," and it provided options to experiment with gravity and digging holes you could escape through or trap monsters in. But rather than digging directly down, the hero could only dig left or right.

"Part of that was if you're going to dig a hole, you can decide whether to jump into it or not, but if you could only dig directly below, you'd immediately fall into the hole and could only ever dig straight down," recalls James. "By digging left or right, there was strategy, and you could plan ahead, digging spaces two squares wide, jumping into that hole and then digging again."

Aficionados will recognise this concept as *Lode Runner*, but at this point in 1980 the game was called *Suicide*, had an '@' symbol for the hero, and juddered about on the Commodore PET. As James reiterates, he'd had no proper schooling in computers: "Because I had no idea how anything worked, I felt it was logical at the time to build an engine that could interpret a game level and then run a processing loop on the monsters."

In a sense, it's appropriate that this making-of is already a loop of sorts, because that's fundamentally what *Suicide* was. This loop was not only the most important aspect of James's creation, but it also informed every *Lode Runner* game that subsequently existed. "The absolute ▶



» [Apple II] When is a floor not a floor? When it's an annoying secret hole that gets you killed.

▶ core was no pre-programmed anything. Just suck the level in, get the coordinates of everything – the monsters, gold to collect, the good guy – and run a loop on it. And the cool thing was the loop was constantly changing, depending on what the characters were doing." James recalls the system scanned for key hits to ascertain changes to the player's position, and then ran the algorithm for each monster, which would adjust their positions. "Because I was a naïve non-programmer trying to learn, I looked at everything like a human would, and figured you'd try to find the shortest route to your prey," he explains. An internal scoring engine looked at steps from a monster to the player in each direction, if reaching them was possible, and the lowest score won out. If there was no benefit in moving, the monster would stay put, because it couldn't get closer to you. "Really, I was doing recursion without knowing what recursion actually was, which was pretty cool," laughs James. "The beauty of the system was that it didn't matter how many monsters I had, because the underlying engine worked with them all. And since there was no specific logic tied to any one level, I could make endless levels and apply the logic to them. Later, I realised this was pretty novel for the time."

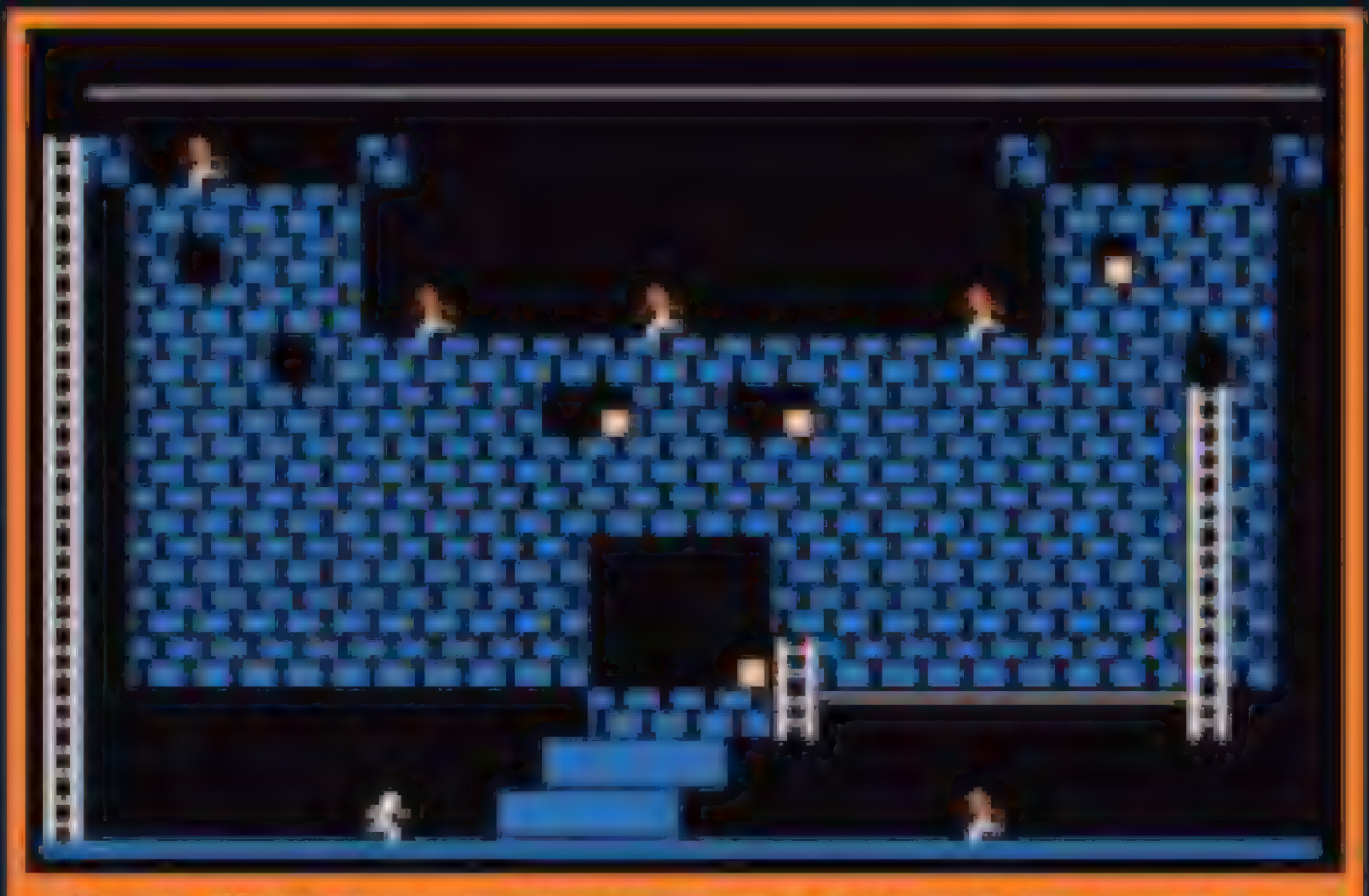
The manner in which James's system worked made the monsters seem to have intelligence – they'd often pause rather than home in on you. "And what made the game really interesting was they ran all this logic to determine if they were going to make this one move, left or right, but you could then jump off a platform and end up falling halfway down the screen. At that point, all bets were off, because your position changed so quickly," says James, adding that – as you might have guessed – "a lot of the fun for me was applying the logic to different levels and not necessarily playing the game!"

In 1981, after high-school, James went to the University of Washington. He took a Fortran class, became a teaching assistant and worked in the computer lab: "I became friends with a guy called Tracy Steinbeck, and we started rewriting *Suicide* for the VAX, and then Doug [Smith] got involved." The game was renamed *Kong*, possibly in tribute to the coincidentally similar *Donkey Kong*, and continued to evolve. "We got bored, thought 'What else can you do?', and started adding arrows, bombs, mines and shields," says James. But the biggest change was still to come, with the game's shift from spare-time computer-lab project to commercial concern.

"During summer, I'd drag my young nephew to campus and he played the game while I worked on it," remembers Doug. "He asked why I couldn't stick it on a floppy, take it home and put it on the Apple II. I had to explain that the VAX had no floppy drive and the game was in the wrong language, but he kept bugging me, so one weekend I rewrote it for the Apple II." Interestingly, Doug didn't own an Apple II nor even care for the machine: "I had no fondness for it, but I did have a natural knack for understanding computers and resolving problems with them." Fortunately, his then-roommate owned one and often asked for Doug's assistance, which drew him into understanding the machine and provided the means to craft the last *Lode Runner* prototype, *Miner*.

Recollections differ regarding this period of history – Doug remembers James lost interest, but James says: "I can see how Doug would interpret it that way, but I didn't know assembly and wasn't in a position to quit school to work on the Apple II. But Doug was gonna invest everything in writing the 6502 version before he ever had anyone to peddle it to." Subsequently, everything progressed rapidly. Newspapers from the time report Doug paid James $1,500 for the rights to his work, finished *Miner* and submitted it to Brøderbund. "I got my rejection letter, saying 'Thank you for submitting your game, but it does not fit within our product line'," says Doug, who then borrowed $800, bought a colour monitor and joystick, and set about improving the game to make it saleable.

Graphics and movement were overhauled, the latter shifting from the character-block movement the game used ▶



» [Apple II] We'd admire the castle-like design of this level if it weren't full of deadly guards.

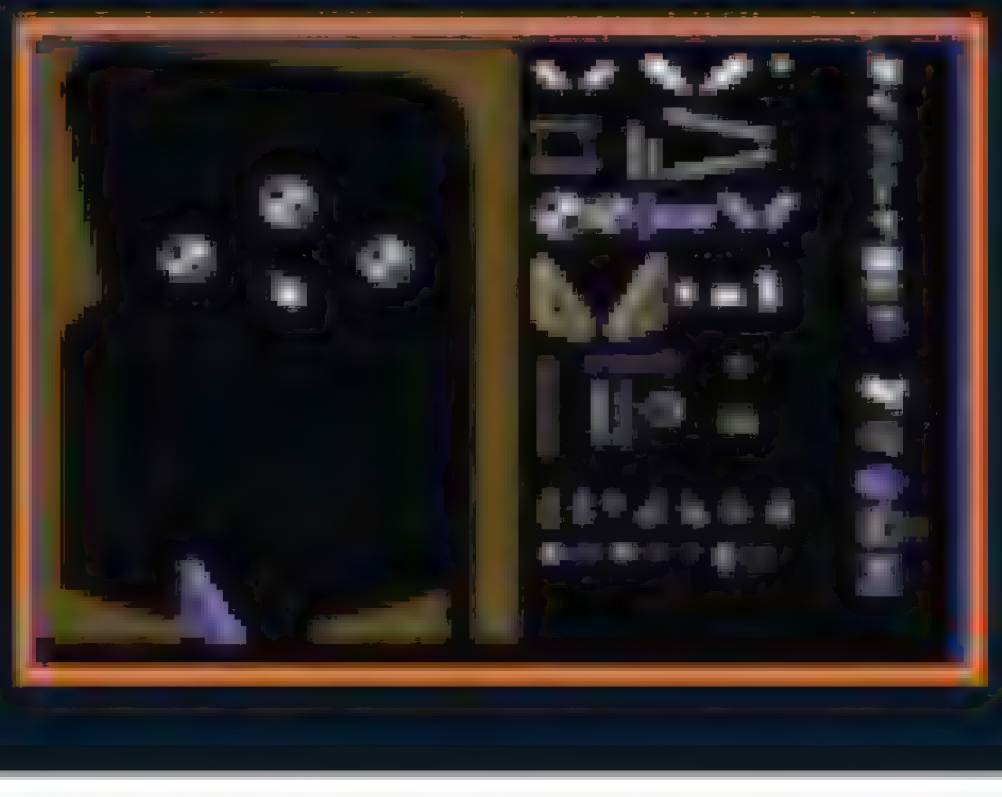
A brief history of level editors

We look at some retro and not-so-retro games that allow you to play game designer

Pinball Construction Set

(C64, Apple II, Atari 800, Mac, PC, 1983)

The game that kicked off the construction craze on computers, Bill Budge's successful pinball table creator allowed players to select and position pinball furniture and even toy around with physics. Tables could then be saved to disk.



Wizard *(C64, 1984)*

An early 1984 platformer that saw players collecting keys to open doors (obviously), and became popular for its stage creator. So much so that an expansion pack/update of the game, *Ultimate Wizard*, was released two years later and included some 50 new stages (some fan-created).

Excitebike *(Arcade, NES, PC-88, 1984)*

Nintendo's earliest racing game let you create your own hilly tracks, set the number of laps, and pick and position obstacles with a simple on-rails editor. The only drawback was the second you turned your console off it was all for naught, unless you owned a Famicom Disk System and a data-writable disk copy of the game.

Adventure Construction Set

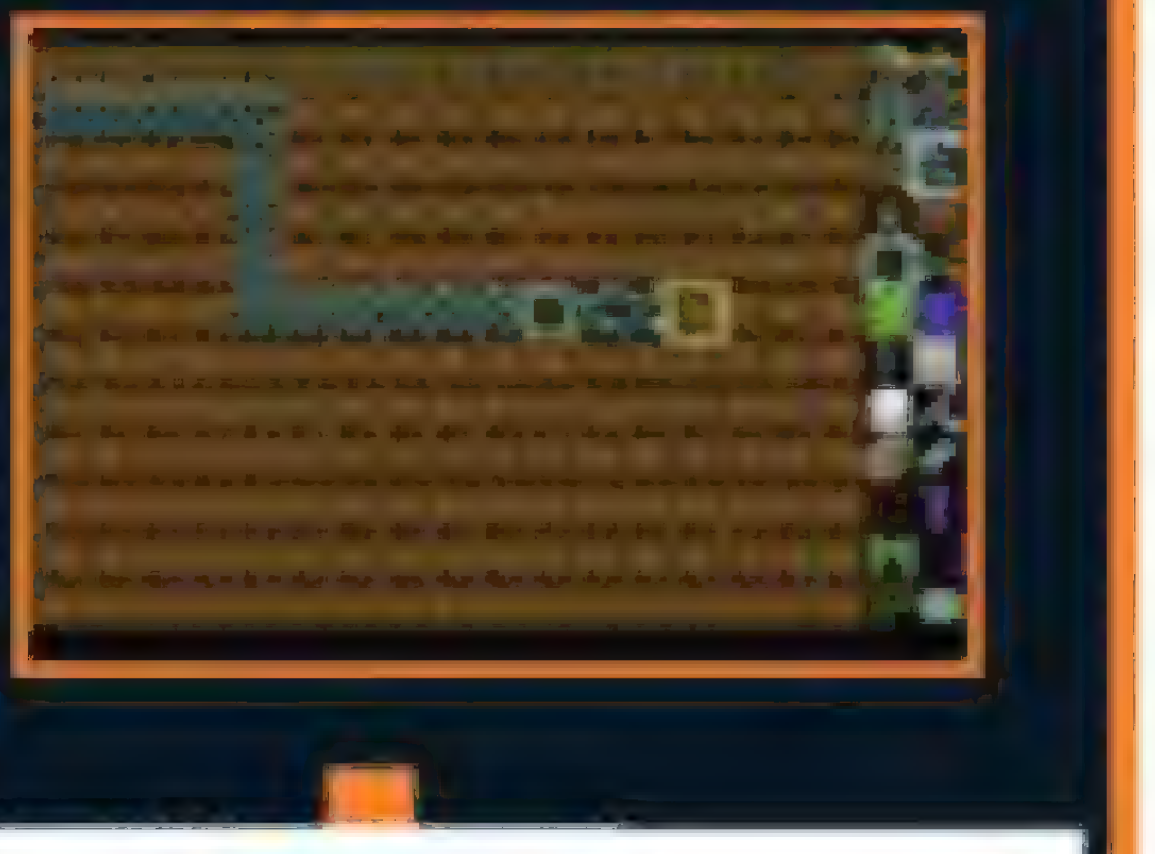
(C64, 1984)

First released on the C64, Stuart Smith's *ACD* was an early hit for Electronic Arts and was directly inspired by Bill Budge's *Pinball Construction Set*. You'll need a lot of patience with it, but you're able to create great tile-based dungeons.

Boulderdash Construction Kit

(Apple II, C64, Spectrum, Atari ST, Atari 8-bit, 1986)

This was an amazingly comprehensive construction kit that enabled you to create all sorts of delicious headache-inducing problems for Rockford. It also shipped with *Boulderdash IV*.



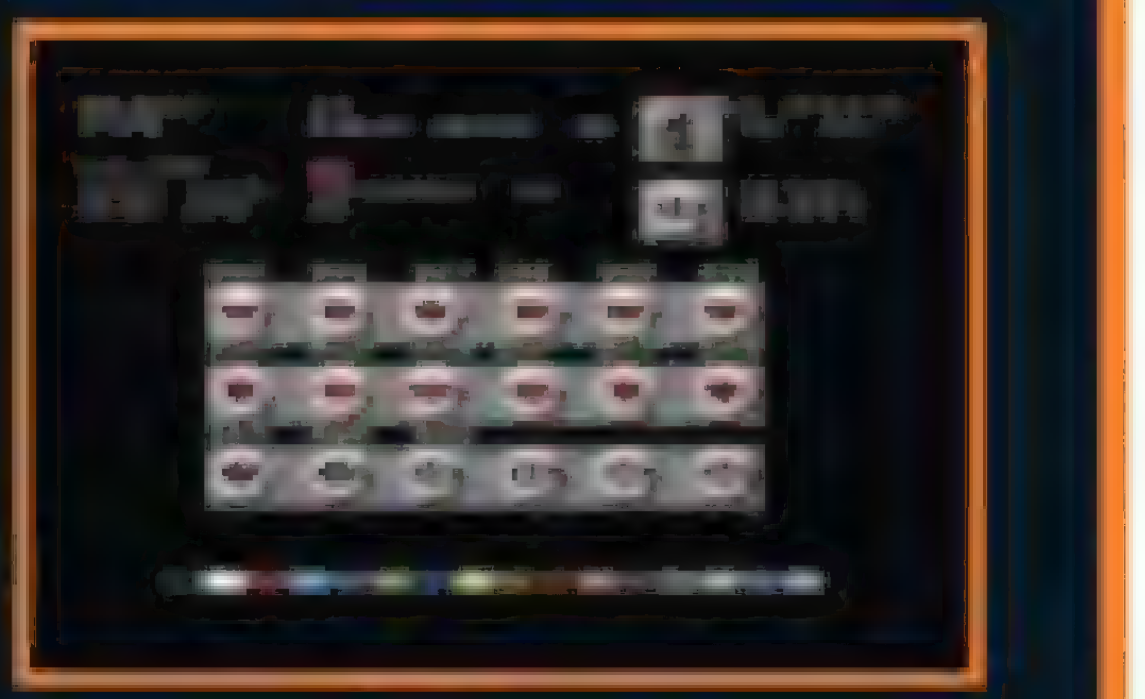
Kikstart II – The Construction Set

(C64, CPC, Spectrum, Amiga, 1987)

More motorbike track designing, this time courtesy of Shaun Southern's *Kikstart II*. Visually, it was a notable step up from its predecessor, but the icing on this mud cake was its simple track editor. You could also save your work to a disk.

SEUCK *(C64, Amiga, ST, 1987)*

Or, to give it its complete name, *Shoot'Em-Up Construction Kit*. It did exactly what it said on its box. Created by Sensible Software, it gave blaster fans the tools and the engine needed to construct their very own space shooters. In addition to the editor, it included four example shooters made with the program to show versatility.



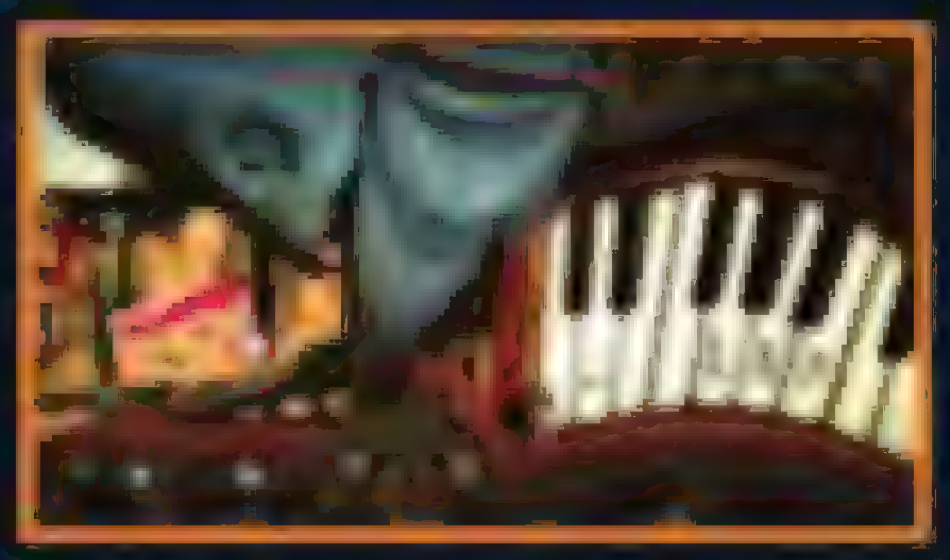
Halo 3 *(Xbox 360, 2007)*

Although it wasn't the first level editor to appear in a first-person shooter, *Halo 3*'s Forge is easily the best. Incredibly easy to use, it allows you to import (or remove) items and weapons into maps that already exist to create brand new environments for players to battle in.

LittleBigPlanet

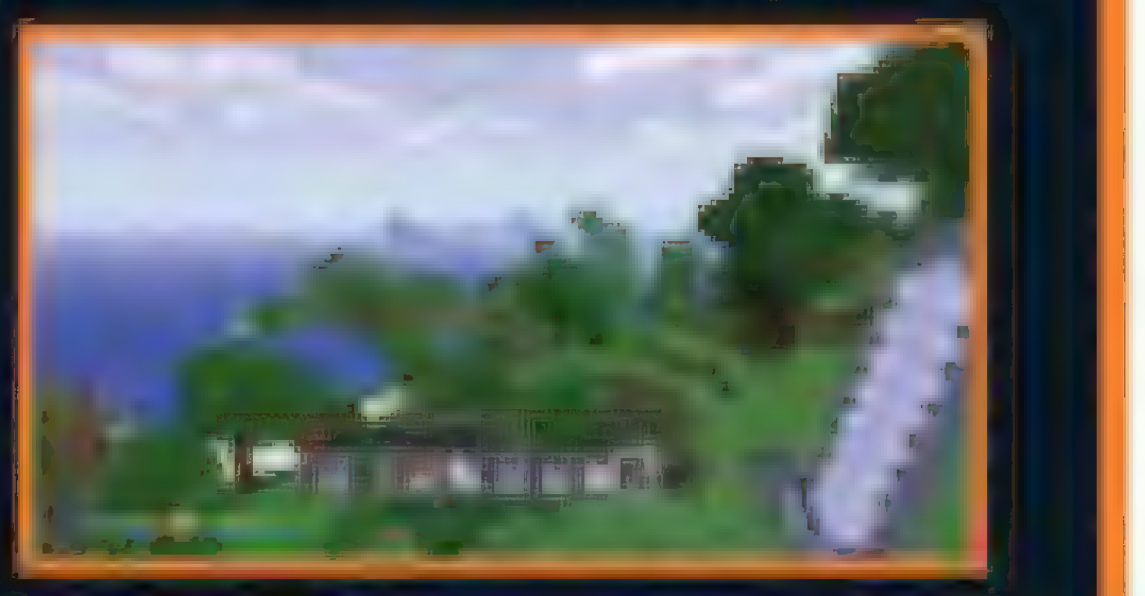
(PS3, 2008)

Media Molecule's award winning PlayStation 3 game did a fantastic job of making level editing relevant for today's gamers. Head online for both *LittleBigPlanet* and its excellent sequel and you'll often find creations that are better than the ones that shipped in the actual game.



Minecraft *(PC, 2009)*

This is the most successful level editor of all time. The sandbox approach of *Minecraft* and the ability to create virtually anything the player likes has turned it into a massive success. The brainchild of Markos 'Notch' Persson, the power of word of mouth helped to drive *Minecraft*'s success, at least to begin with.

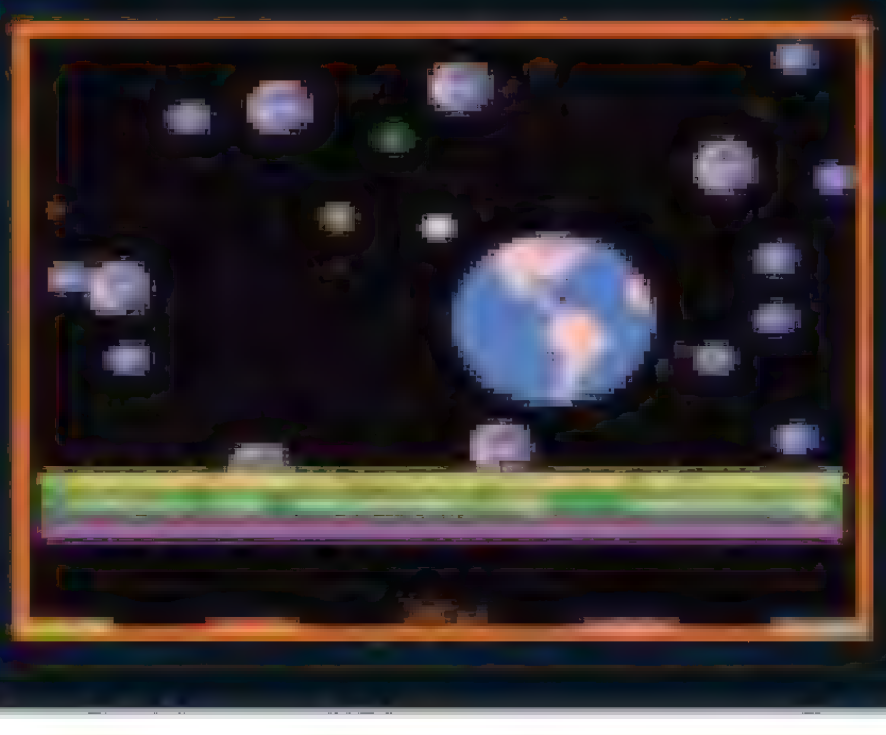


From Computer To Arcade

Five home videogames that made it to the arcades

Astro Chase (Exidy, 1982)

As soon as its games were confirmed successes, First Star Software was approached by Exidy to gain the arcade rights. Taking a fairly easy option, the resulting arcade machines were essentially boxed Atari computers, with modifications to support an arcade-style joystick, buttons and coin drops.



Cosmic Chasm (Cinematronics, 1983)

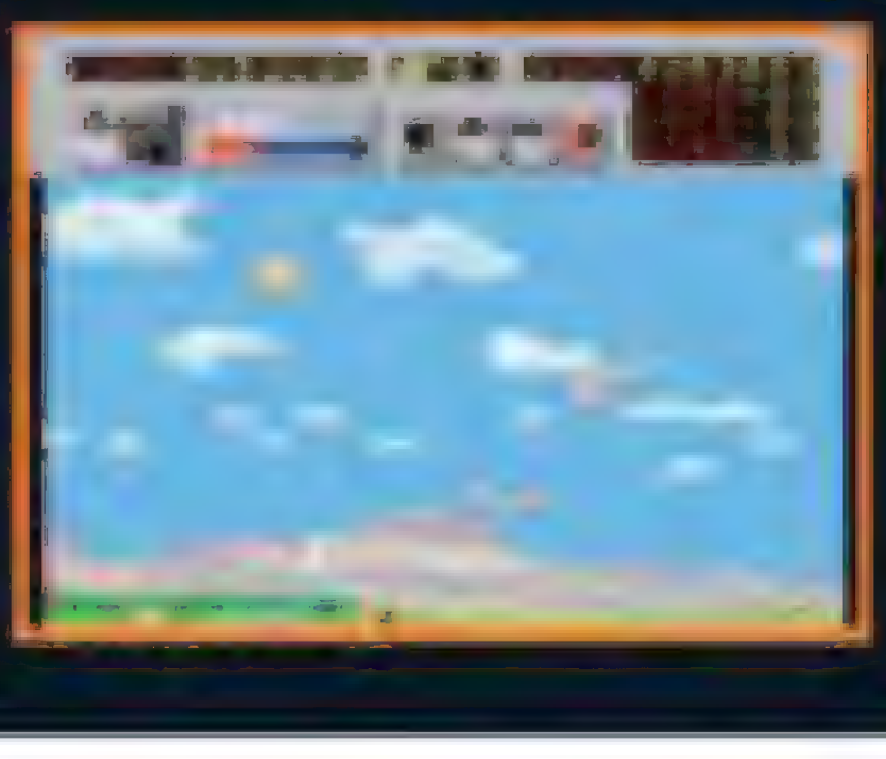
Originally created for the Vectrex by GCE, *Cosmic Chasm* was a year later taken to the arcades by Cinematronics. The game itself finds you on a mission to wreck a space station, through blowing up its tiny but deadly craft, finding your way to the reactor room and then letting rip. Touching anything is fatal…

Pitfall II (Activision/Sega, 1984)

Based on David Crane's classic Activision games and reprogrammed for the arcades by Sega, *Pitfall II* has you controlling a cute, cartoonish Pitfall Harry through a cute, cartoonish jungle. The snag: all the cute, cartoonish beasties are out for your blood – even trees, which fling angry apples at your head.

Choplifter (Sega, 1985)

Like *Lode Runner*, *Choplifter* was first an Apple II classic. The game featured a daring pilot, attempting to rescue hostages being held in prisoner of war camps. Sega's arcade version expands on the original, which was a very streamlined production (one level, 64 hostages, three sorties), providing a level-based approach.



Tetris (Atari, 1988)

A few years after Alexey Pajitnov created his classic block-falling action-puzzler on the Electronika 60, the game found its way to the arcades, courtesy of Atari. The graphics unsubtly alluded to the game's Russian origins, and the R in the character set was playfully reversed at every opportunity.

▶ since its PET incarnation to smoother pixel-level motion. Controls were honed, enabling commands to be better cued, like in *Pac-Man*. "That was important—there was a margin of error and you could time it to execute when you got to the appropriate point," explains Doug. Despite a perfectionist streak, he wanted everything to be fluid versus overly precise, but details also mattered. While initially keen on animation assistance for the hero and enemies, no-one understood Doug's desire that humanoid characters not be 'treadmill': "I wanted to make sure when they put a foot down, it stayed fixed to that part of the ground." He subsequently created the graphics himself.

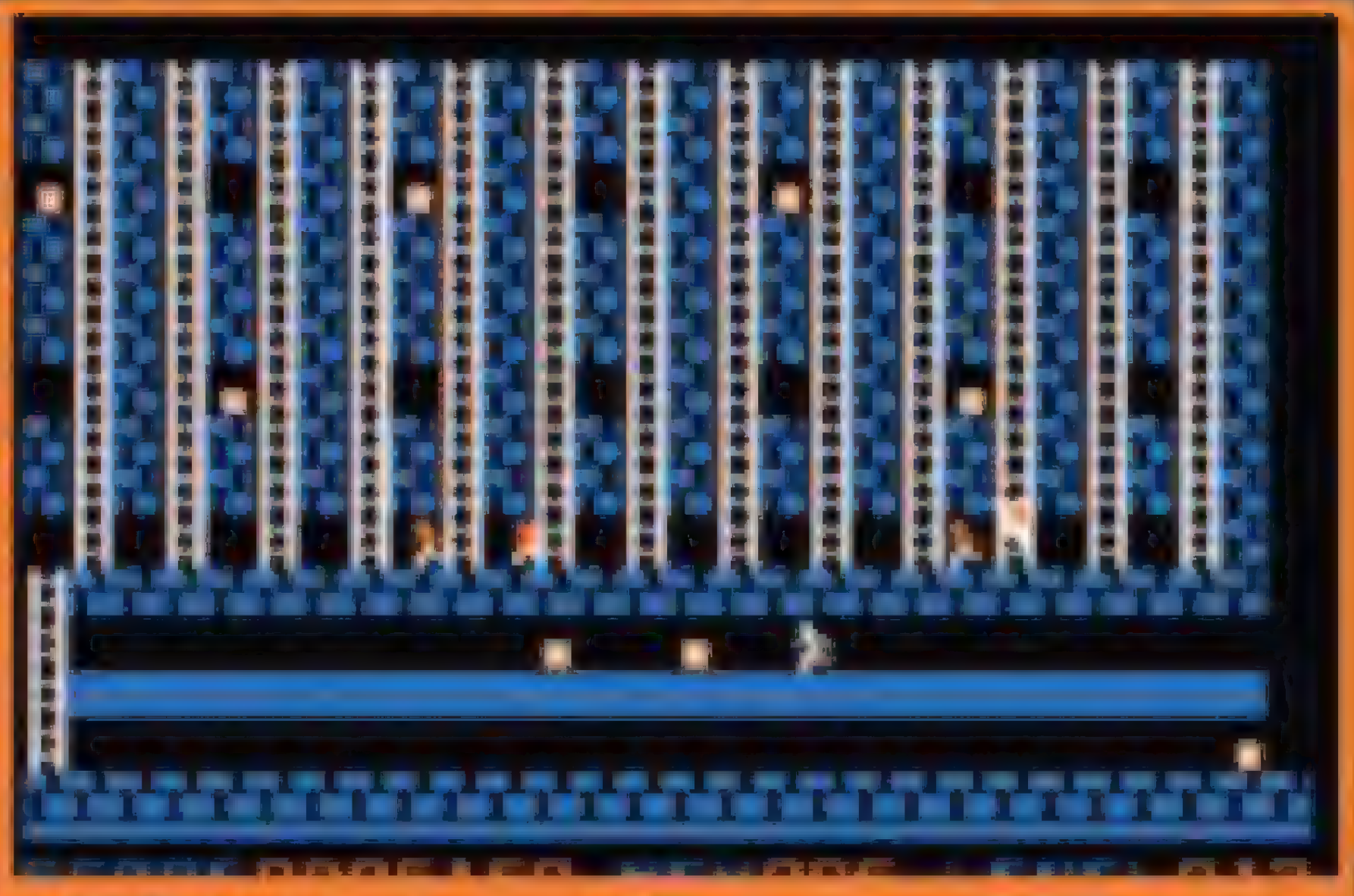
Further changes impacted the game, including a pre-level pause, awaiting player input before the enemy guards first moved. "*Lode Runner* was always intended to be a kind of strategy game, and I thought it would be good if you could pause, figure out a strategy and execute it," he says. But although Doug was the game's absolute director, some aspects were out of his hands. Having re-sent the improved game to various publishers, Brøderbund reconsidered, and Doug signed a contract, promising 150 levels. Lacking time to create them, they were farmed out to friends and neighbours; hundreds were supplied to the publisher on disk, with a utility enabling levels to be eliminated and ordered to suit.

When asked about the quirky guard AI and its surprising sophistication for the day, Doug laughs and suggests we're "maybe giving too much credit," because that too wasn't entirely his doing. "Back then, a lot of it was the luck of the process, realising there were quirks of the logic you could utilise." During testing, he realised you could 'force' enemy guards to collect gold on your behalf, and so "use them as a bridge to get to otherwise unobtainable behaviours". This opened up avenues for advanced level design, and, in a sense, followed James's lead, emphasising a system over hard-coded level-specific knowledge and seeing what happened. Doug even admits his penchant for optimisation almost ruined the game: "In all honesty, the logic ended up being kind of a fluke, even though it was integral to some puzzle-solving aspects. I did at one point refine the logic to be perfect, so guards would always find the shortest path to you, but that lost a lot of the quirky character. The game became too perfect. I spent a month on that and had to rip it all out and revert to an earlier version!"

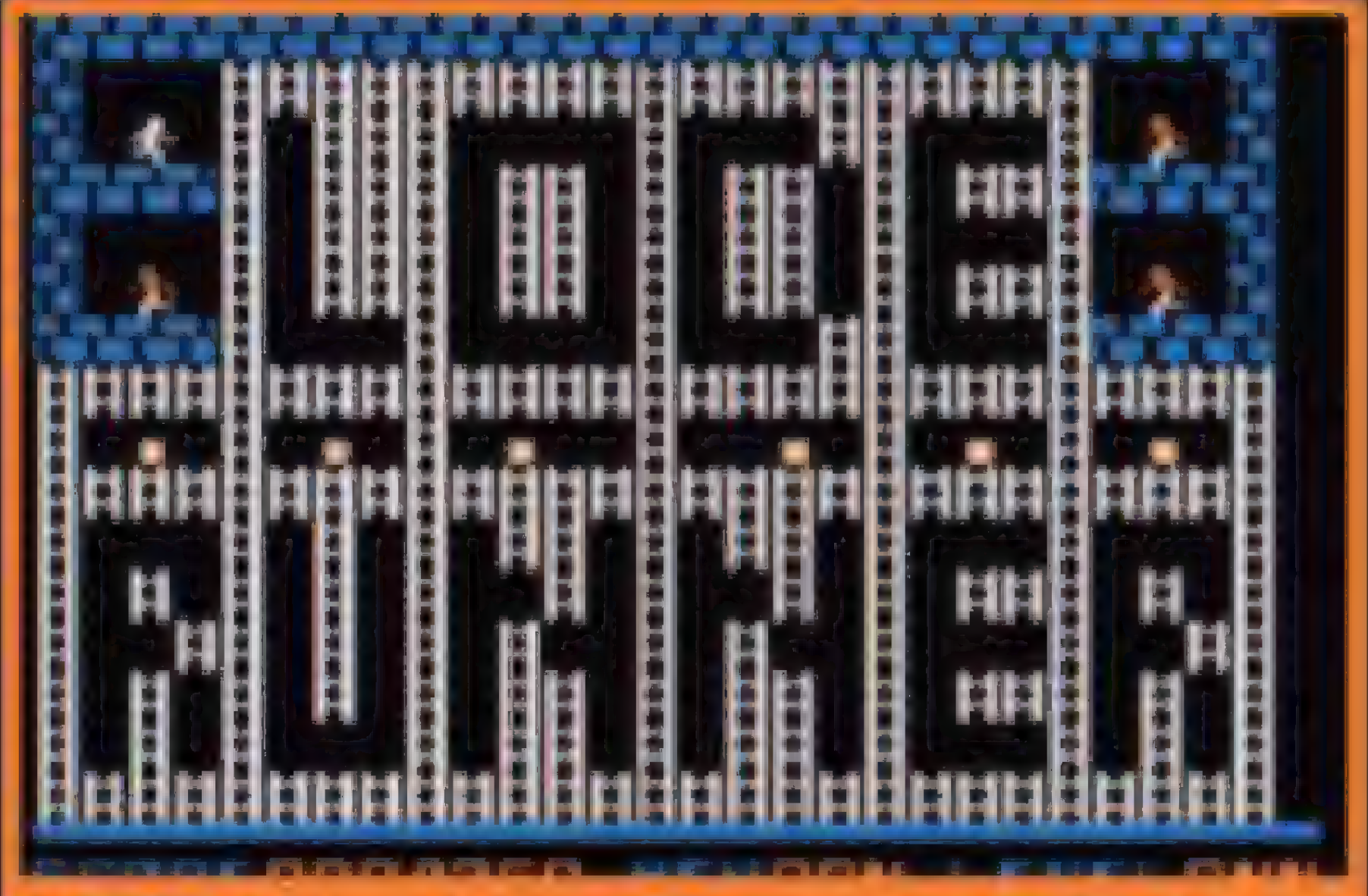
A rarity at the time, Brøderbund intentionally left the level editor in the shipping product, resulting in countless custom levels being created and submitted to the publisher. "We got so many we did a sequel, *Championship Lode Runner*, using the toughest levels," says Doug. "We removed the editor, so people couldn't peek at the levels, and there are some I spent weeks trying to solve! People had definitely taken advantage of and understood the quirkiness of the AI, and created levels that took a dedicated person to get through."

> **The logic ended up being kind of a fluke, even though it was integral** DOUGLAS SMITH

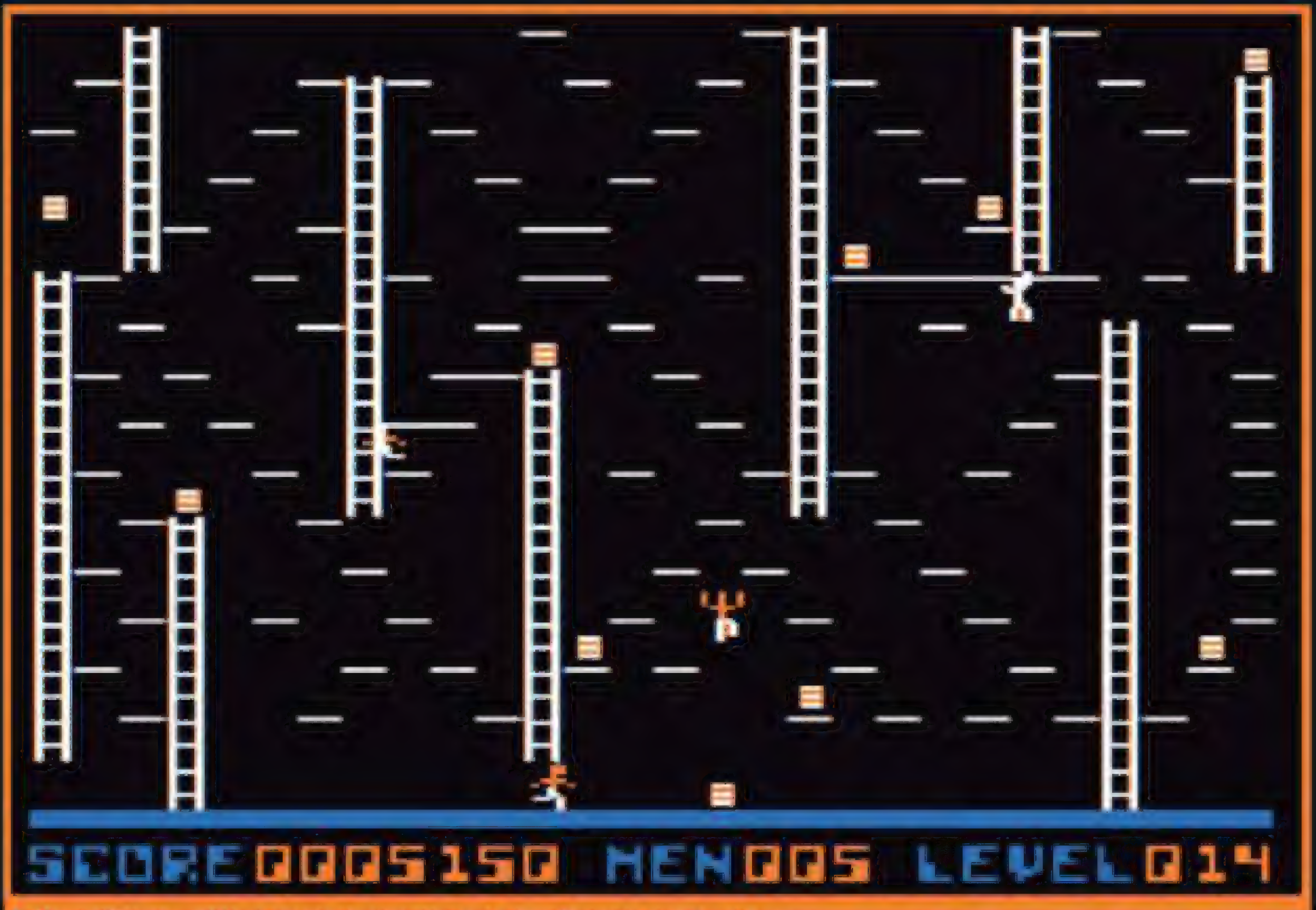
Although hands-on with some early *Lode Runner* ports, Doug says he felt "kind of played out". He became "more publicist than developer", mostly touring Japan, where the game had become popular, before leaving the industry to raise a family. A driving force behind *Lode Runner*'s Japanese popularity was then-Irem executive Scott Tsumura. "In 1983, our arcade team had many game fanatics playing home computer games, and *Lode Runner* was their favourite," he recalls. "I loved it too. It was unique because the runner couldn't jump or shoot, but could create temporary holes in the environment, trapping enemies and allowing the hero to escape." Through being "basic and fun, with a good combination of action, speed and imaginative puzzles," Scott considered *Lode Runner* ideally suited to Japanese tastes.



• [Apple II] It's lure-the-guards time.



• [Apple II] At level 44, do you really need this reminder…?



» [Apple II] No floors? Yeah, thanks for that. No, we're fine. Probably also: dead soon.

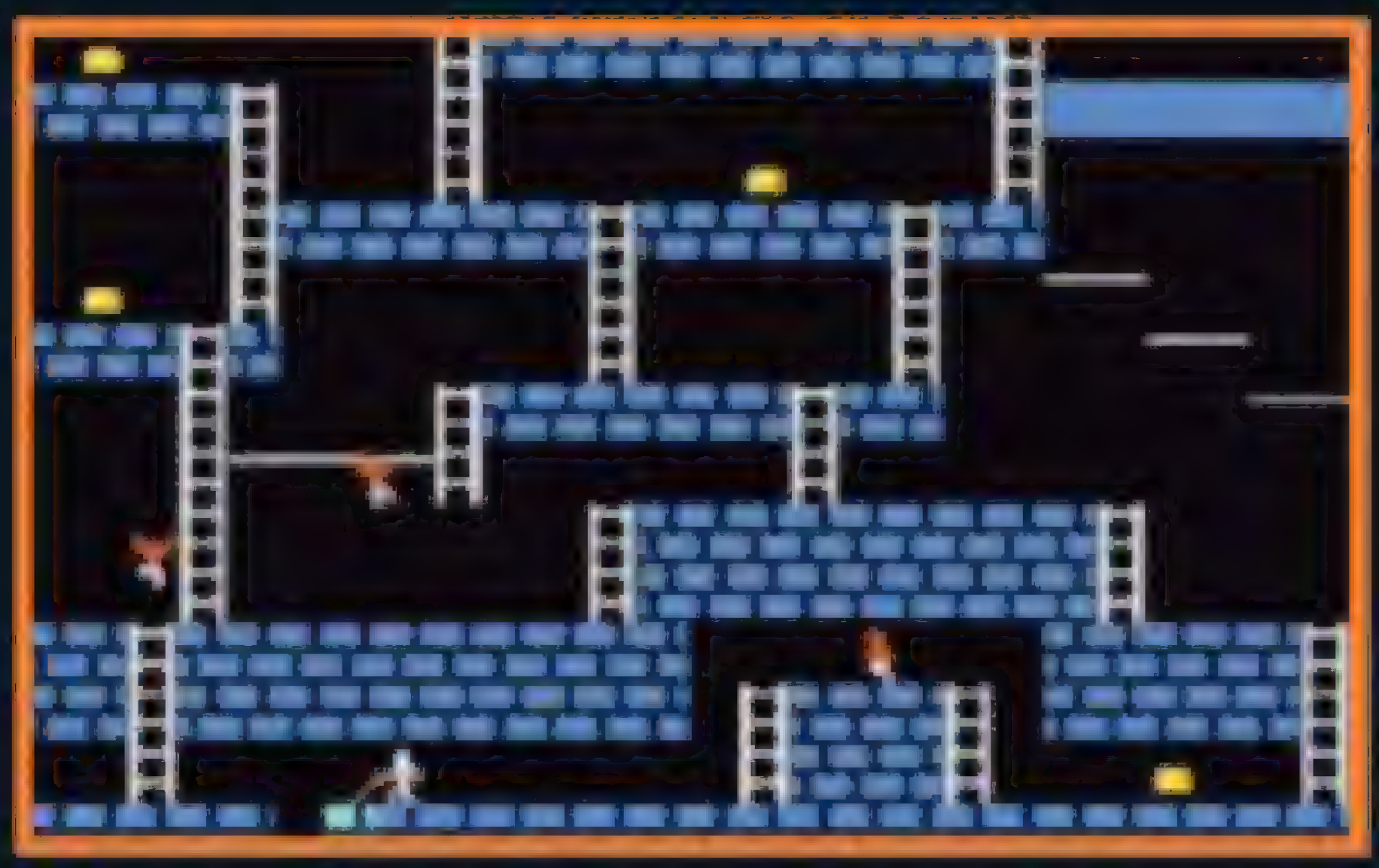
At the time, Scott recalls a clash between the demands of keeping people engrossed with arcade games versus the sales needed for home gaming: "Arcade developers had a bit of pride and regarded home-gaming developers as 'lower in rank', and so porting a PC game to the arcades was unimaginable." But Scott felt, with some twists, *Lode Runner* would buck the trend; a contract duly signed, Irem set about reworking the game. "Balance was given careful consideration, as the player should never fail unjustifiably. Difficulty of play and technique were factored into the game's learning curve. And score wasn't important on the PC – completing levels was the main objective – but scoring is important for status in the arcades," explains Scott. Hence, Irem introduced rewards for risks, such as trapping three enemies and running over them, and a bonus for collecting a shimmering piece of gold before the others.

Simultaneously, visuals and audio were overhauled. "The original's graphics were cool and stark, but the arcade's better resolution enabled us to use a warmer style that appealed to a larger demographic," says Scott, noting arcades were then full of colourful games competing for attention. "We also added enemies that changed every three levels, and each had unique animations. For the audio, many new samples were created, and, after much discussion, we used a sound from Irem's *10 Yard Fight* for blasting, the game's most important action!"

Along with starting its successful run in the arcades, Scott helped *Lode Runner* to various home systems, sometimes bringing Doug back on board. "The world evolves, and the game must evolve to continue being challenging and new, but it must also retain the original's premise and structure," thinks Scott on how *Lode Runner* games are approached. He regrets the odd deviation – "The N64 version, although an interesting puzzle creation with complex 3D paths, lost some of the original *Lode Runner* magic" – but is proud of the XBLA release, which he reckons "plays like it was born of the original, but has many new game modes and feels contemporary."

Turning to the game's creators, Doug Smith blushes a little when we ask how it feels to have launched such a long-running, well-loved series: "It was a shock—a Cinderella story. But I think I was just lucky at the right time, in the right era, with the right product." We suggest it takes more than luck to succeed, and Doug modestly states "the biggest thing *Lode Runner* ever had going for it is that it was a very simple game, and so it was adaptable."

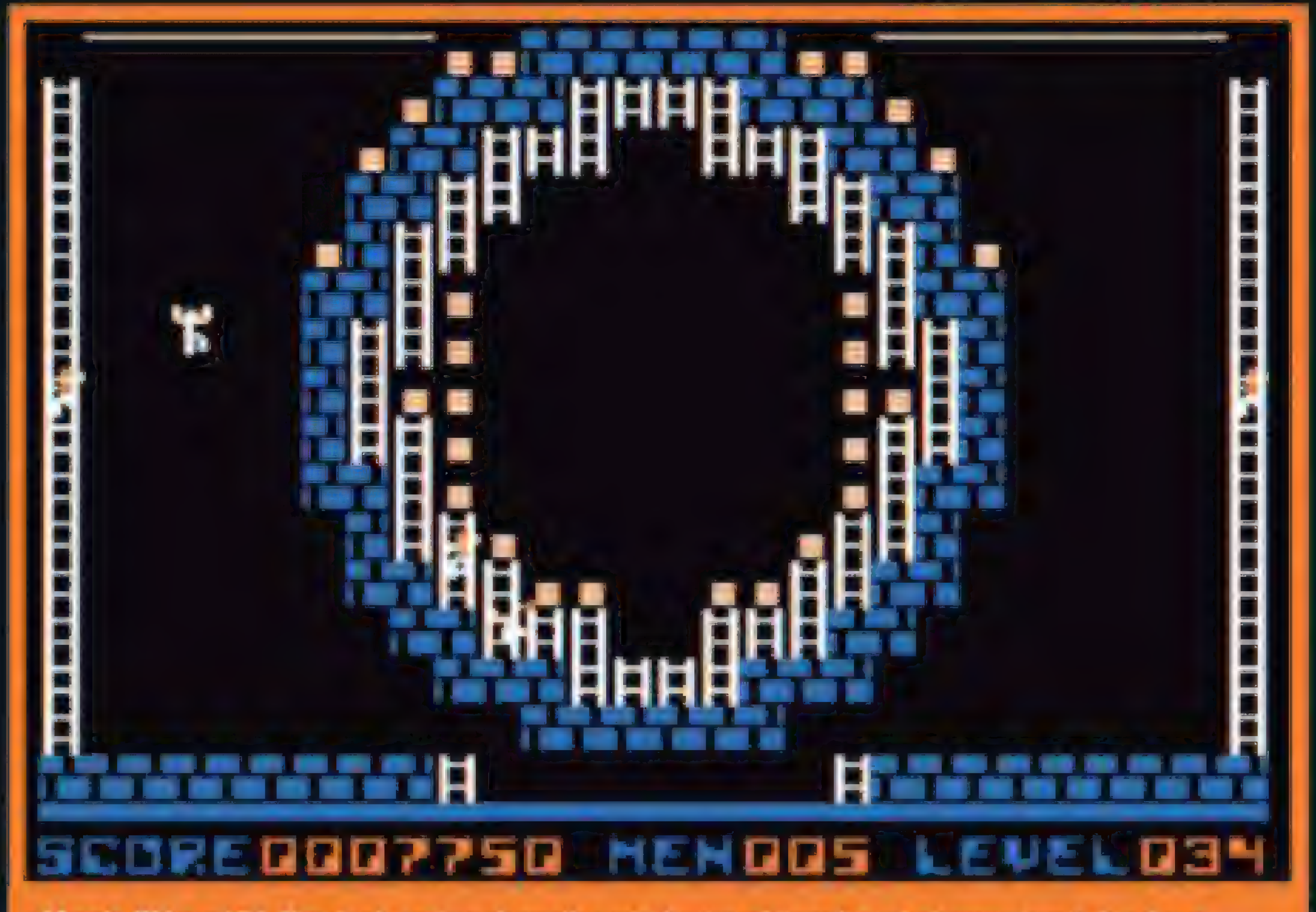
As for James, often the forgotten figure in the *Lode Runner* story, he says it's very exciting to have started the ball rolling, thanks his maths teacher for allowing him time on the PET, and graciously acknowledges Doug's dedication. "I like to think some of my creative juices remain in *Lode Runner*, but hats off to Doug for having the wherewithal for putting everything on hold and not taking no for an answer. He had perseverance and belief, and I respect him immensely for that, because at that time in life, few people would have had the diligence. Basically, he was a college student who worked through who knows how many all-nighters. I think that's a good example for young kids today."



Lode Runner Goes Mobile

Lode Runner Classic brings back the original game for mobile devices

Lode Runner Classic brings the Apple II original to mobile touchscreen platforms. Tozai co-founder Scott Tsumura calls it a "tribute to the original 1983 release," including similar graphics, AI and level design, but with new features, such as achievements, leaderboards and two game modes: expedition and time attack, for long and short play sessions, respectively. "It's a nice opportunity for us to show off the classic gameplay mechanic to a new generation," continues Scott, who reckons today's games can be "shrouded, hidden in decorative layers." He believes the core *Lode Runner* is beautiful, and he's proud to release an 'undecorated' version. One possible snag: touch controls, which he admits "present a challenge for games designed around keyboards and joysticks". But Tozai has implemented alternative input methods: a D-pad; accelerometer controls for Android and iOS; and a system that divides screen edges into invisible buttons for movement.



» [Apple II] Level 34. One look and our hero thought better of it and tried plummeting to his doom.

The History of Lode Runner

There have been a lot of Lode Runner games in the past 30 years. Don't believe us? Then check this little lot out…

LODE RUNNER

- 1984
- Arcade
- Irem
- Arcade conversion (but in the opposite sense) by Irem that featured sci-fi theme, levels that were more compact, and new gameplay mechanics (such as time bonuses).

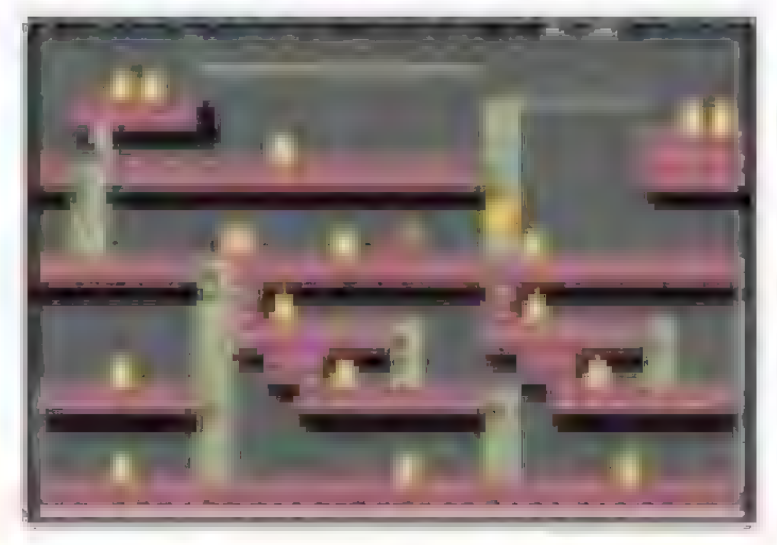
LODE RUNNER – THE BUNGELING STRIKES BACK

- 1984
- Arcade
- Irem
- This was a very swift sequel from Irem that featured 30 stages, 10 based on the original stage set and 20 new stages to complete. It continued the sci-fi theme found in the original arcade game.

LODE RUNNER – GOLDEN LABYRINTH

- 1985
- Arcade
- Irem
- Yes another arcade sequel by Irem. Like *The Bungeling* it continued with a science fiction theme and featured 30 stages – some new, some based on the original level set.

LODE RUNNER – TEIKOKU KARANO DASSHATSU



- 1986
- Arcade
- Irem
- This fourth arcade featured 30 stages (some based on the original set) introduced a multiplayer mode, in which players competed on the same stage simultaneously.

SUPER LODE RUNNER

- 1987
- FDS, MSX
- Irem
- Home release by Irem that has an obvious conversion feel to its arcade series, it featured 55 single-player stages, 15 co-op, and a level editor. A very fine effort that's worth tracking down.

IREM

MINER

- 1982
- Apple II
- Douglas E. Smith
- An early ASCII platformer by Doug E Smith, inspired by *Space Panic*, later received an updated version for the Apple II titled *Miner*. It is widely seen as a precursor to *Lode Runner*.

PROFESSIONAL LODE RUNNER

- 1985
- C64
- Dodosoft
- Similar in concept to *Championship Lode Runner* (although it can't really be considered to be a port), *Professional* was packed with all new taxing stages to tear your hair out to.

LODE RUNNER'S RESCUE

- 1985
- C64
- Synapse Software
- Isometric collect-and-avoid-'em-up in the style of Atari's *Crystal Castles* (like you couldn't tell from looking). You played Lode Runner's daughter on a mission to rescue her pops from the Bungeling Empire.

HANDHELD

LODE RUNNER – THE LEGEND RETURNS

- 1994
- Various
- Presage Software
- A remake of the original that introduced several new devices and traps that impacted the standard gameplay, including stages cast in darkness with visibility provided by torchlight.

LODE RUNNER

- 1983
- Various
- Douglas E. Smith
- The first commercial release for the series was published by Broderbund. It featured 150 stages, was notoriously tough and was notable for being one of earliest games to feature a level editor.

LODE RUNNER II

- 1983
- MSX
- Douglas E. Smith
- *Lode Runner II* was a MSX exclusive which featured and impressive 50 levels. 22 of the stages were based on the original game, while the others were brand new stages. An enjoyable sequel.

HUDSON

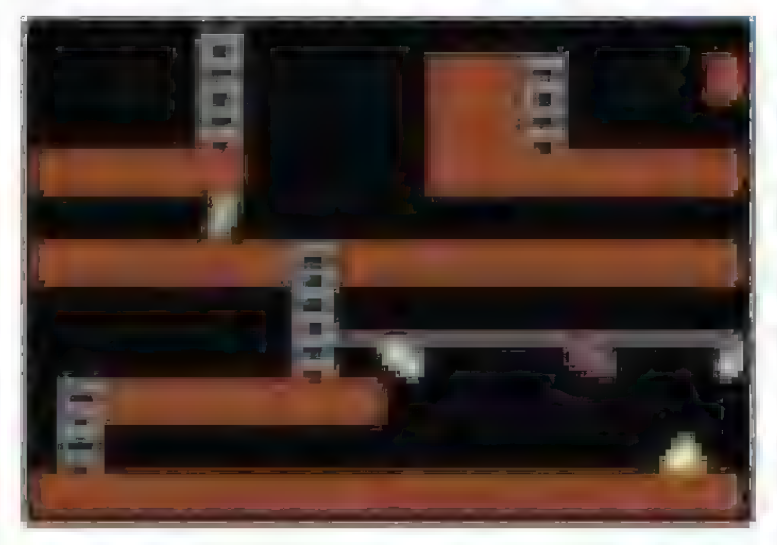
LODE RUNNER – LOST LABYRINTH

- 1990
- PC Engine, Turbografx 16
- Pack-In-Video
- Loose conversion of the original (contains all 150 levels), but gives the player sprite and enemy sprites a fresh lick of paint.

LODE RUNNER TWIN

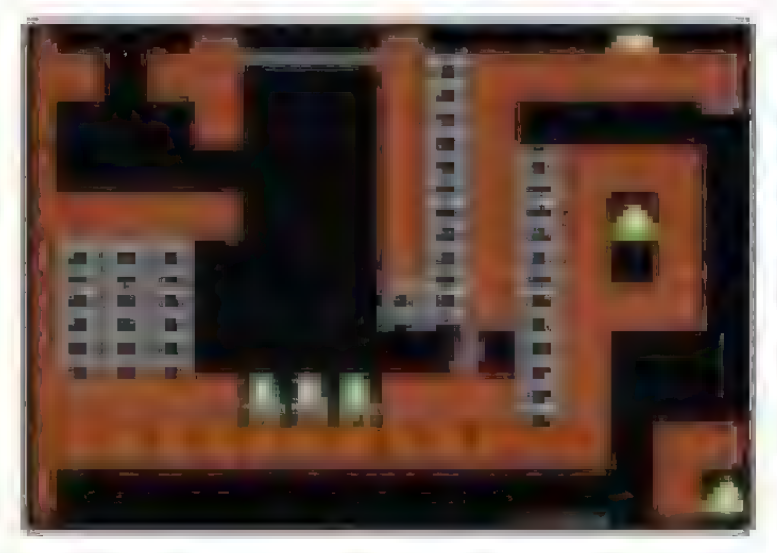
- 1994
- Super Famicom
- T&E Soft
- Colourful sequel with cartoony visuals and pseudo-3D levels, it was only released in Japan and is notable for being the first game in the series to have an actual story mode. Worth investigating.

LODE RUNNER



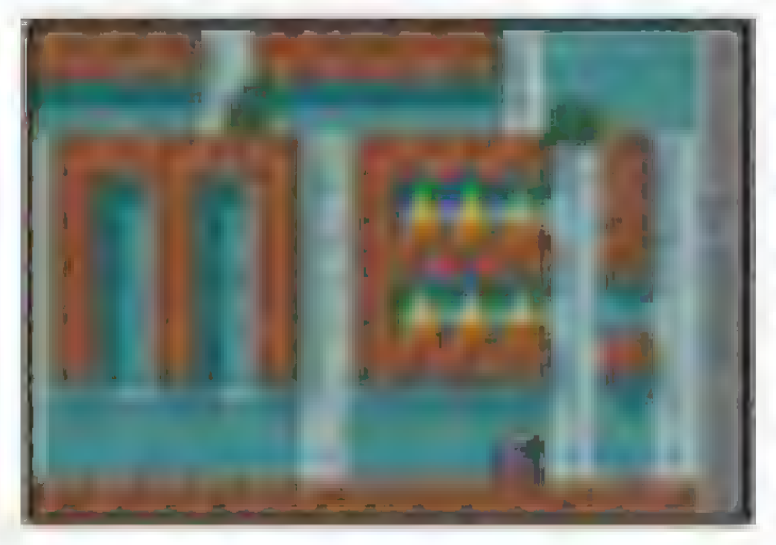
- 1984
- NES
- Hudson Soft
- Written by Hudson Soft, this was the first console release for the *Lode Runner* franchise. It featured *Bomberman* enemies and was the first game in the series to feature zoomed-in stages that scrolled.

CHAMPIONSHIP LODE RUNNER



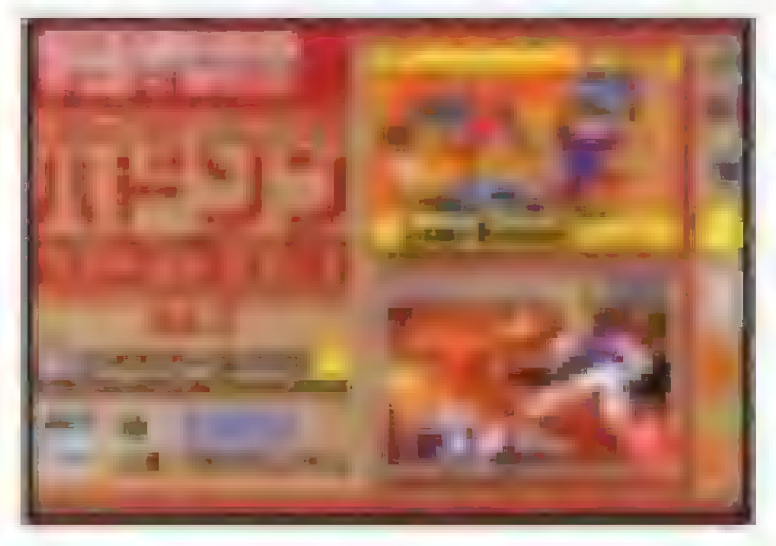
- 1984
- Various
- Broderbund / Hudson Soft (NES)
- 50 taxing stages designed by fans and no level editor, this challenging sequel was designed to test the logic and dexterity of gold-grabbing pros.

BATTLE LODE RUNNER



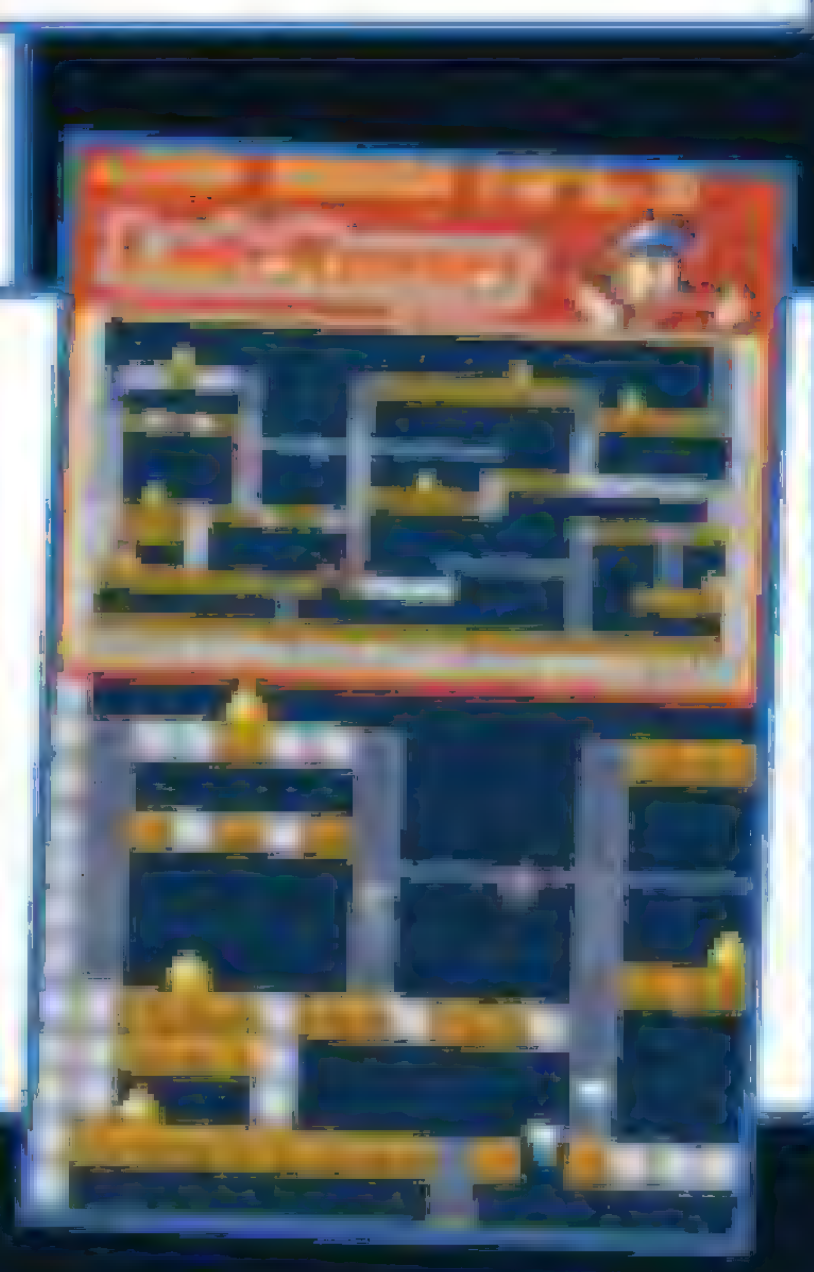
- 1993
- PC Engine, Virtual Console
- Hudson Soft
- Sequel from Hudson that introduced a *Bomberman*-style 'battle' mode, in which up to five players compete against each other across different game modes.

HUDSON BEST COLLECTION VOL. 2: LODE RUNNER COLLECTION



- 2005
- GBA
- Hudson Soft
- GBA compilation pack that only saw release in Japan, it included the original NES versions of *Lode Runner* and *Championship Lode Runner*.

LODE RUNNER DS

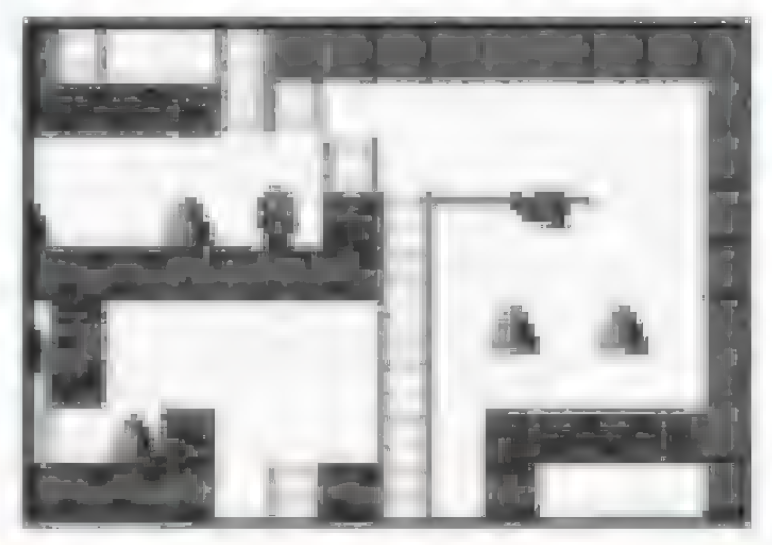


- 2006
- Nintendo DS
- Hudson Soft
- A mesh port of the two NES games, it makes good use of the handheld's dual screens to offer both zoomed-in and map viewpoints. Also comes with a level editor.

SUPER LODE RUNNER II

- 1987
- FDS
- Irem
- Irem continued to milk the *Lode Runner* franchise with yet another game. This particular sequel featured 30 single player stages, the same number of multiplayer levels and a level editor.

HYPER LODE RUNNER

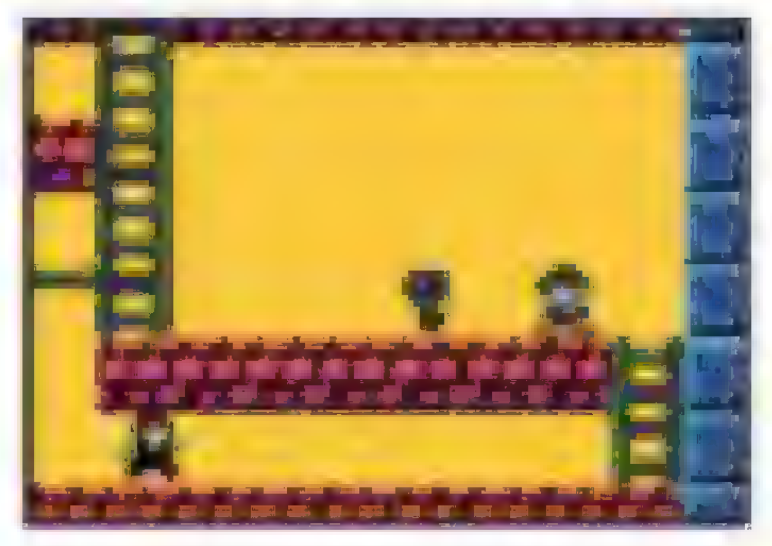


- 1989
- GameBoy
- Bandai
- First portable entry for the series, and a launch game for the Game Boy in Japan, it added a key and door mechanic to the traditional gameplay. Perfect for portable play.

LODE RUNNER KEYCHAIN

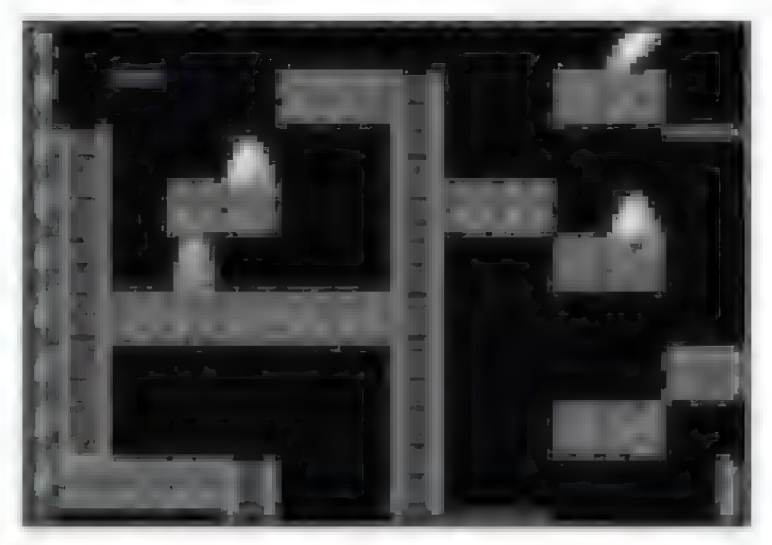
- 1997
- N/A
- Xing Entertainment
- LCD handheld by XING Entertainment, it featured a choice of two different *Lode Runner* games and a level creator, amazingly. We'd love to say the level editor is incredible, but we've never seen it in the wilds.

LODE RUNNER DOMUDOMU DAN NO YABOU



- 2000
- Game Boy Color
- Xing Entertianment
- *Domu* had cartoony visuals, new stages, two game modes (including a story model), zoomed-in visuals and was the first *Lode Runner* to feature a hub world. The only *Lode Runner* on Game Boy Color.

LODE RUNNER: WONDERSWAN



- 2000
- Wonderswan
- Banpresto
- Released for Bandai's monochromatic edition of its Wonderswan, this sequel had two playable heroes and an outer space anime theme. There's an additional bonus level if you can find the items to activate it.

LODE RUNNER

- 2002
- GBA
- Success
- Coded by Success, *Lode Runner* offered a more puzzle-style take on the traditional *LR* gameplay and let players select between two views. It featured 100 levels and a level editor.

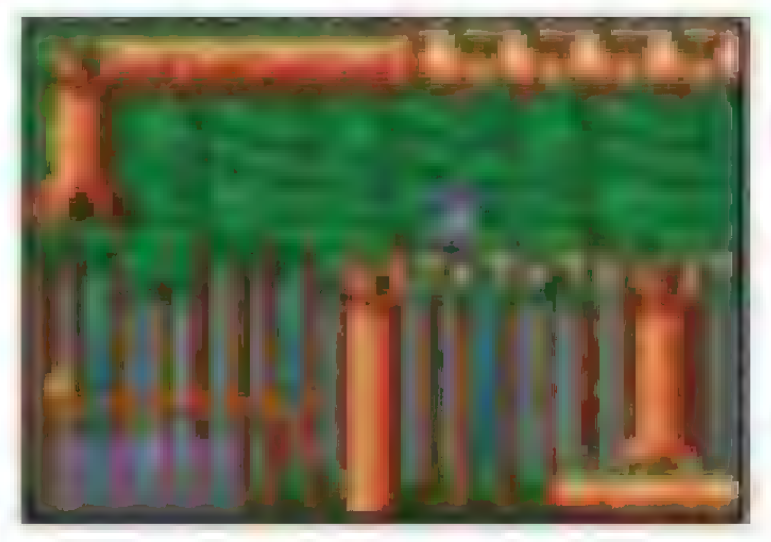
LODE RUNNER ONLINE: THE MAD MONKS' REVENGE

- 1995
- Various
- Presage Software
- This is an impressive sequel to *The Legend Returns*, it added online functionality, non-linear stages, plus a selection of new devices over those the original introduced.

LODE RUNNER 3-D

- 1999
- N64
- Big Bang Software
- Featured a colossal 156 stages (20 secret bonus stages to find), true 3-D visuals and a new blasting mechanic. It also introduced bosses to the mix, making it an interesting addition to the series.

POWER LODE RUNNER



- 1999
- Super Famicom
- Atelier Software
- Japan-only sequel with a cartoony art style (Lode Runner is an anthropomorphic critter), a zoomed-in perspective and themed worlds, the most cutesy platformer feeling entry in the series.

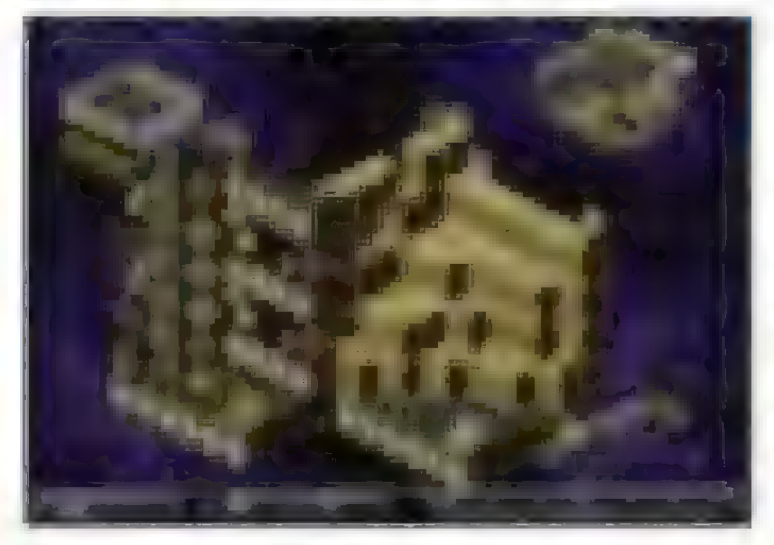
LODE RUNNER

- 2009
- XBLA
- Tozai Games/SouthEnd Interactive
- Solid XBLA update boasting over 200 levels and nice hi-res 3D graphics. It also came with a level editor that allowed you to create and share with others users online. A solid addition to the franchise.

LODE RUNNER EXTRA

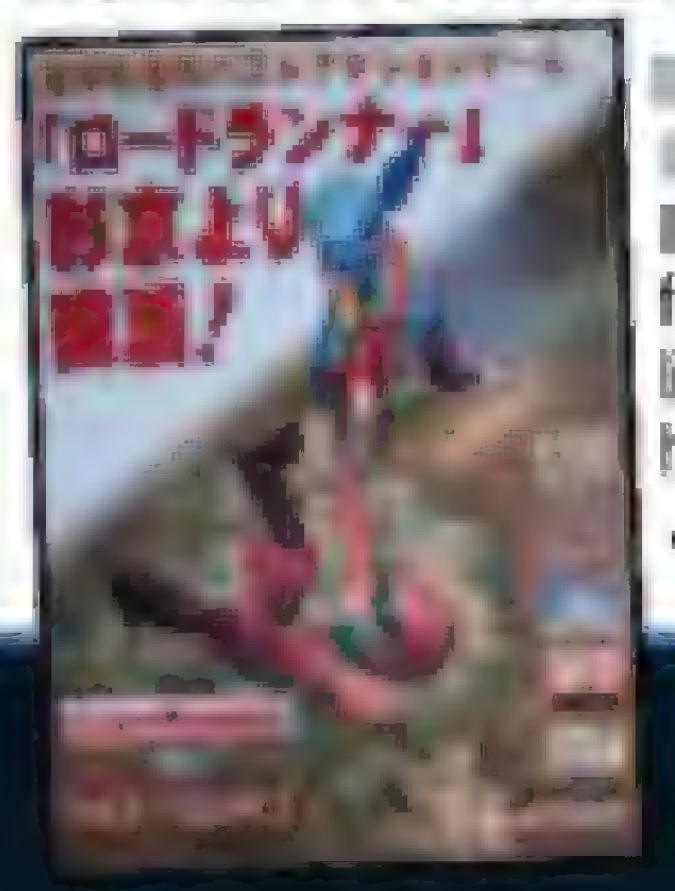
- 1997
- Sega Saturn, PlayStation
- PATRA (Saturn), Natsume (PlayStation)
- Late *The Legend Returns* port for PlayStation and Saturn that featured 40 less stages than the original computer version. The missing ones weren't interesting enough.

LODE RUNNER 2



- 1998
- Windows, Mac
- GT Interactive
- An isometric sequel with an eye-meltingly bright art style, it's notable for being the first game in the series to be in 3D and having enemies with distinctive AI. It also includes a death match mode.

LODE RUNNER – THE DIG FIGHT



- 2000
- Arcade
- Psikyo
- Yes another arcade sequel, this time with a focus on head to head gameplay, and replaced lives with a ticking down time limit that players had to top up to stay in the game. It was another Japanese exclusive for the series.

CUBIC LODE RUNNER

- 2003
- GameCube, PS2
- Hudson Soft
- Released on Hudson Soft's budget label, it applied the standard *Lode Runner* gameplay to cubic playing fields. It also featured the original NES port as an unlockable extra.

MOBILE

LODE RUNNER MOBILE

- 2004
- Mobile phones
- FT Mobile
- Updated graphics and 60 levels, which can be played in any order, to beat in this Java constructed sequel by Hudson Soft. Created by FT Mobile it went on to win IGN's Editor's Choice award.

LODE RUNNER DELUXE

- 2006
- Mobile phones
- Hudson Soft
- An early ASCII platformer by Doug E Smith, inspired by *Space Panic*, later received an updated version for the Apple II titled *Miner*. It is widely seen as a precursor to *Lode Runner*.

LODE RUNNER MOBILE

- 2008
- Mobile phones
- Hudson Soft
- Another mobile offering by Hudson Soft, this sequel featured 80 levels and a level editor. It's another fun take on the series, but suffers slightly due to the reliance of keybutton controls.

LODE RUNNER IOS

- 2008
- Mobile phones
- Hudson Soft
- Mode laden update for Apple devices, the most notable new mode was 'Gold Rush', which saw players racing to collect gold piles inside stages that auto scrolled downwards.

LODE RUNNER X

- 2012
- Mobile phones
- Tozai Games/SouthEnd Interactive
- Essentially the single-player stages, puzzles screens and components from the XBLA release, it was released on Sony's Xperia Play and Android devices.

LODE RUNNER CLASSIC

- 2012
- Mobile phones
- Tozai Games/Studio Voltz
- A remastering of the 1983 classic with two game modes, Time Attack and Expedition, a level select and online functionality, but sadly no level editor.

Future Classic

Modern games you'll still be playing in years to come

retro GAMER
PORTAL
IN THIS ISSUE OF RETRO GAMER

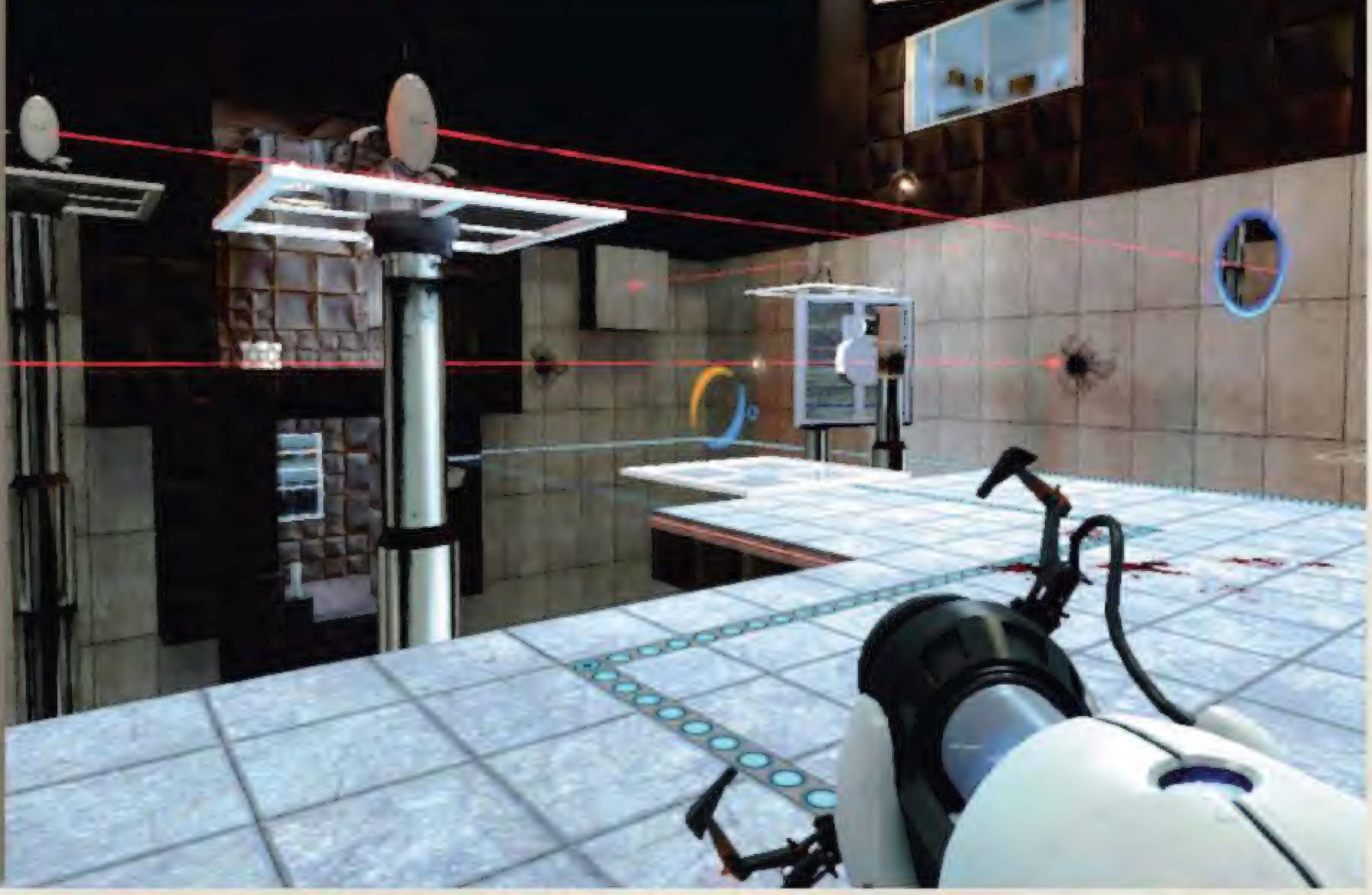
The Orange Box

INFO

- **Featured System:** PC
- **Year Released:** 2007
- **Publisher:** Valve
- **Developer:** Valve
- **Key People:** Kim Swift (project lead), Gabe Newell (managing director, Valve), Erik Wolpaw, Chet Faliszek, Marc Laidlaw (writers)

GO DEEPER

- **With the presence of Aperture Science, *Portal* is clearly set in the same universe as *Half-Life*.**
- **The voice of GLaDOS, Ellen McLain, also voices Overwatch in *Half-Life 2*.**



PORTAL

As the poster child for self-contained short form gaming experiences, Portal was a small and perfectly formed puzzle game, built around one brilliant mechanic

THE BACKGROUND

First came *Narbacular Drop*, a game built by a team of students who would later go on to create *Portal* – this project went down so well that Valve hired the entire team to expand on some of its ideas, the most crucial of which was the ability to create two portals to move between different parts of the environment. Valve is a relatively secretive developer when it comes to the actual process of making games, but it's interesting (and retrospectively obvious) that so many of the elements that were warmly received in *Portal* came directly from the personalities of the staff working on the title.

The game is intended as the story of robot overlord GLaDOS, rather than the protagonist, with *Portal* structured to be the beginning, middle and the end of the AI – charting her gradual descent into madness and eventual demise at the hands of the player. And at the climax of the game, this AI sings a song, with lyrics about cake and light dialogue about death. This sense of humour came from project lead Kim Swift and writers Erik Wolpaw, Chet Faliszek and Marc Laidlaw – Swift suggested the idea of the 'companion cube' that would become the iconic image of Portal, an arbitrary block with a heart on it. The song itself came from a collaboration with singer Jonathan Coulton, which was also based on Swift's suggestion, and also became a key component of *Portal*'s reputation.

Interestingly, *Portal* was initially just part of a larger package, the *Half-Life 2*-themed Valve compilation *The Orange Box*, but *Portal* would be singled out by some critics as the strongest product on the disc. It was later released separately from the package.

THE GAME

Portal is a an odd and hypnotic experience, a series of challenge rooms framed as a human experiment within Valve's quirkily presented world. Using a portal gun to move between two parts of the same environment, the three-or-so-hour arc sees Valve at

Things of note

The Brave Sequel

Portal 2 naturally doesn't feel as new as the original, but that's compensated for with some excellent storytelling and decent use of co-op play.

The Orange Box

A Shade Of Orange

The Orange Box is one of the best-reviewed games of the generation, bundled as it was with *Portal*, *Team Fortress 2*, *Half-Life 2* and both DLC episodes of the latter game.

Still Alive

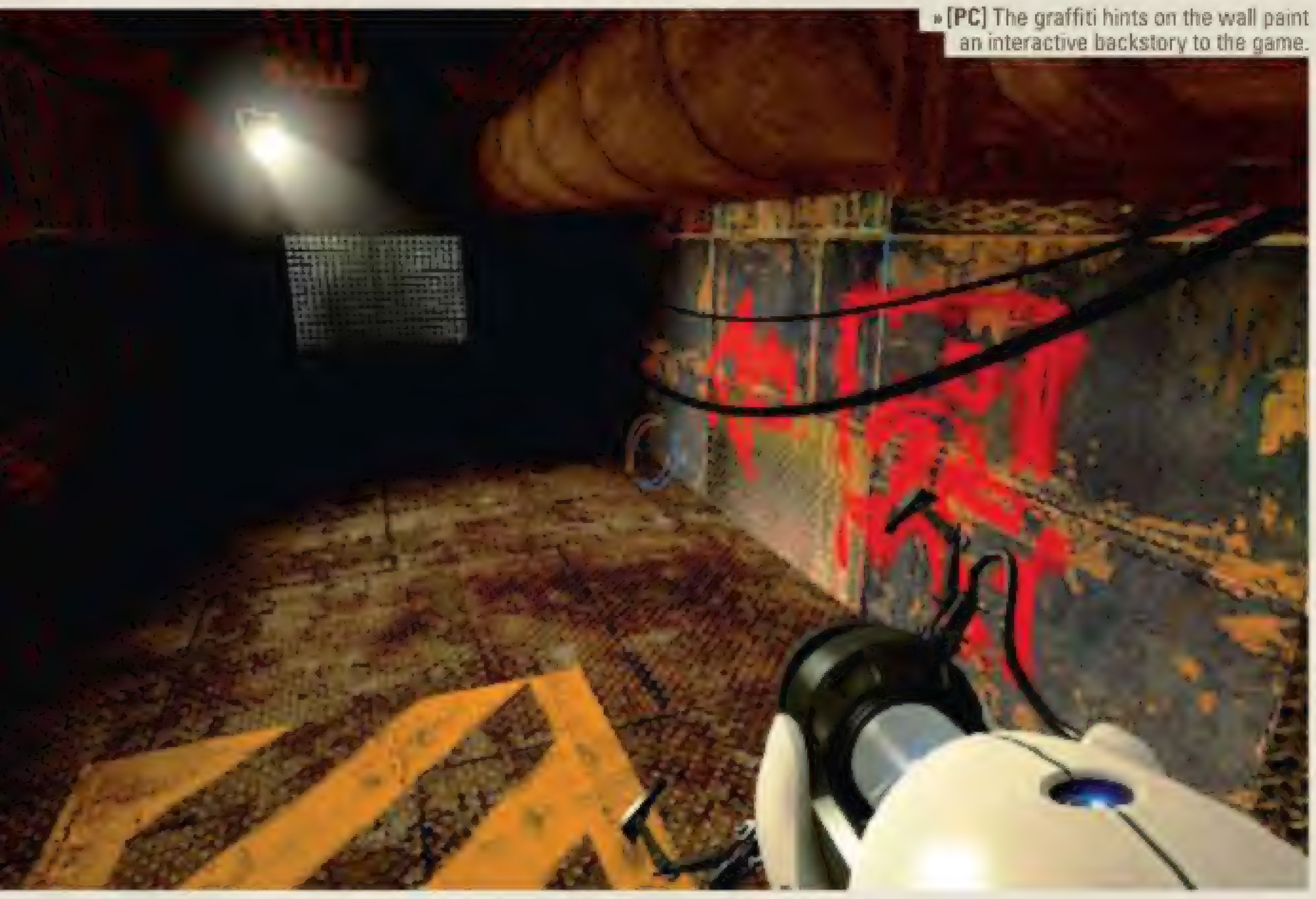
An enhanced edition with bonus levels, *Portal: Still Alive* is the ideal standalone package for a game best known as being part of a wider selection of titles.

This was a triumph…

Portal's climactic song really is a hilarious treat – and it's still just as simultaneously touching and funny today. *Portal 2* tried the same joke in a disappointingly unmemorable way.

Humour that works

How few games that try to be funny actually end up being funny? *Portal* is one of the few that makes it look effortless – and it was a unique sense of humour on display, too.



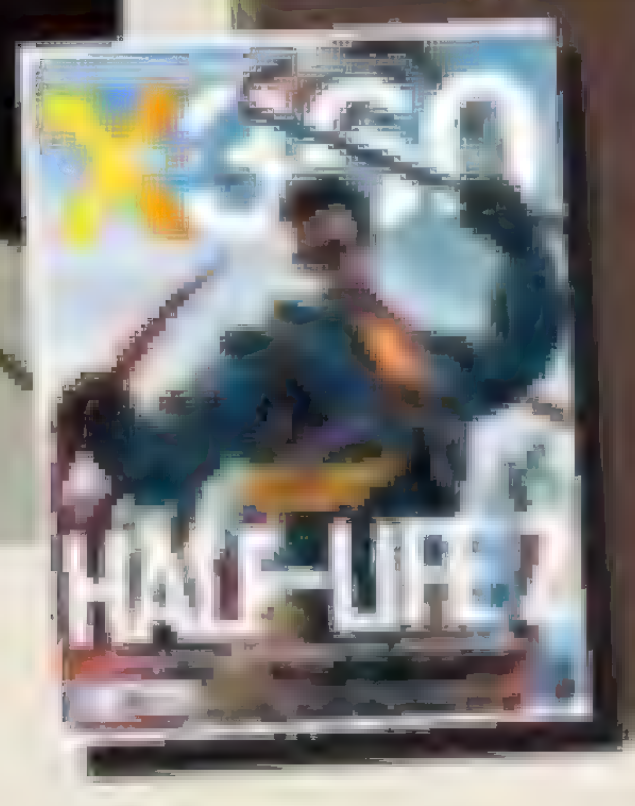
» **[PC]** The graffiti hints on the wall paint an interactive backstory to the game.

» **[PC]** Even at its toughest, you just can't give up on *Portal*.

» **[PC]** *Portal* remains engaging and well-paced without the use of combat.

What the press thought

gamesTM
Score: 9/10
"However, there are only so many good words that need to be said about *Portal*: it's a short-lived masterpiece that, like everything else in *The Orange Box*, you simply must own."



X360
Score: 9/10
"Forgive us if we start like this: buy it, buy it, buy it, buy it. Yes, that'll do."

» **[PC]** The final boss encounter even features former Faith No More singer Mike Patton as one of the weird robot things you have to kill.

its most consistent when it comes to level design. Each puzzle is designed to test your physics and logic skills, except the changing nature of these challenges means that creativity must soon play a part, too, and it's that progressive approach to design that forms one tenet of why *Portal* is such a damned good game: this is not an easy genre to reinvent, but Valve managed it with typical flair.

The other breakthrough comes in story. The first part of everyone's *Portal* experience was firing two portals with this fancy new gun in front of and behind Chell, the protagonist, and staring down an infinity tunnel that had just been created. That feeling of gradually being pulled into this extraordinary world is echoed by *Portal*'s multi-layered narrative, which combines the discovery of minute details about the background of this backdrop with the comical psychological torment of sorts fired at the player by GLaDOS, Chell's captor.

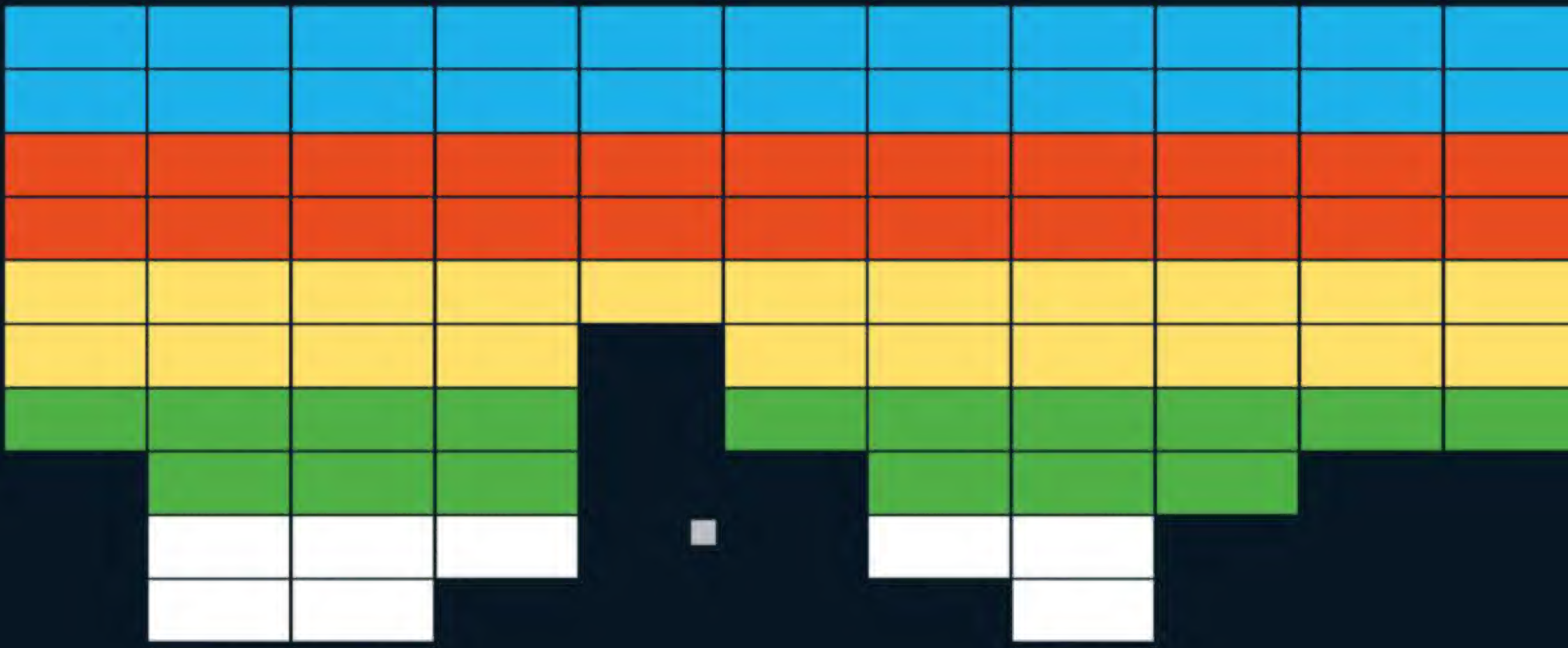
Valve subtly merged two elements that are usually found in opposing types of games; the delicacy with which narrative is looped into these physics-based puzzles, how they adapt to the necessarily slow pacing of *Portal*, is admirably precise. The story is elevated far beyond being just an audiovisual theme for the puzzles, or a zany skin to carry the player along – it ended up getting much more critical dissection than the game's later ingeniously constructed puzzles.

That's due to the fact that you spend the entire tale unsure of what exactly is going on, following a breadcrumb trail of obscure clues to GLaDOS's lair. *Portal* doesn't have a complicated story, but it's designed so you're always reconsidering your surroundings as you go, viewing every test as not just a logical challenge but a shard of the story. Like *Half-Life 2*, which forms a pastiche of various gaming genres but ultimately has its own creative voice, this represents a clever philosophy towards interactive storytelling that offers a snapshot of what many first-person games could be like in 20 years: cutscene-free, finding clever ways to represent characterisation that only this medium can pull off, and not being afraid to let the player piece together a story beneath the one being beamed to them by the developer.

WHY IT'S A FUTURE CLASSIC

While it's by no means the first shorter form experience in videogames, *Portal* has certainly popularised the concept of an unashamed three to four hour arc that allows ideas to be conveyed without having to adhere to the format flabby, 12-hour £40 boxed titles. It was very much an experiment for Valve, another selling point for *The Orange Box* – yet *Portal* deservedly grew into something beyond that, becoming its own franchise that is now synonymous with the fusion of progressive narrative design and innovative 3D puzzles. *Half-Life 2* is the jewel in the crown for Valve, of course, yet *Portal* is the kind of game you'd show to someone who hasn't played anything since 1991, to demonstrate what the very best brains in the industry are capable of.

THE STORY OF
BREA



A VIDEOGAME THAT LINKS TWO OF AMERICA'S MOST FAMOUS ELECTRONIC COMPANIES, BREAKOUT'S STORY IS A FASCINATING ONE. WE HIT THE TILES AND LOOK BACK AT THE HISTORY OF GAMING'S ORIGINAL BLOCKBUSTER

Widely seen as the first massively popular arcade and home videogame, *PONG* was Atari's first major hit. And *Breakout*, its second best-known smash from this era, is cut from a similar cloth.

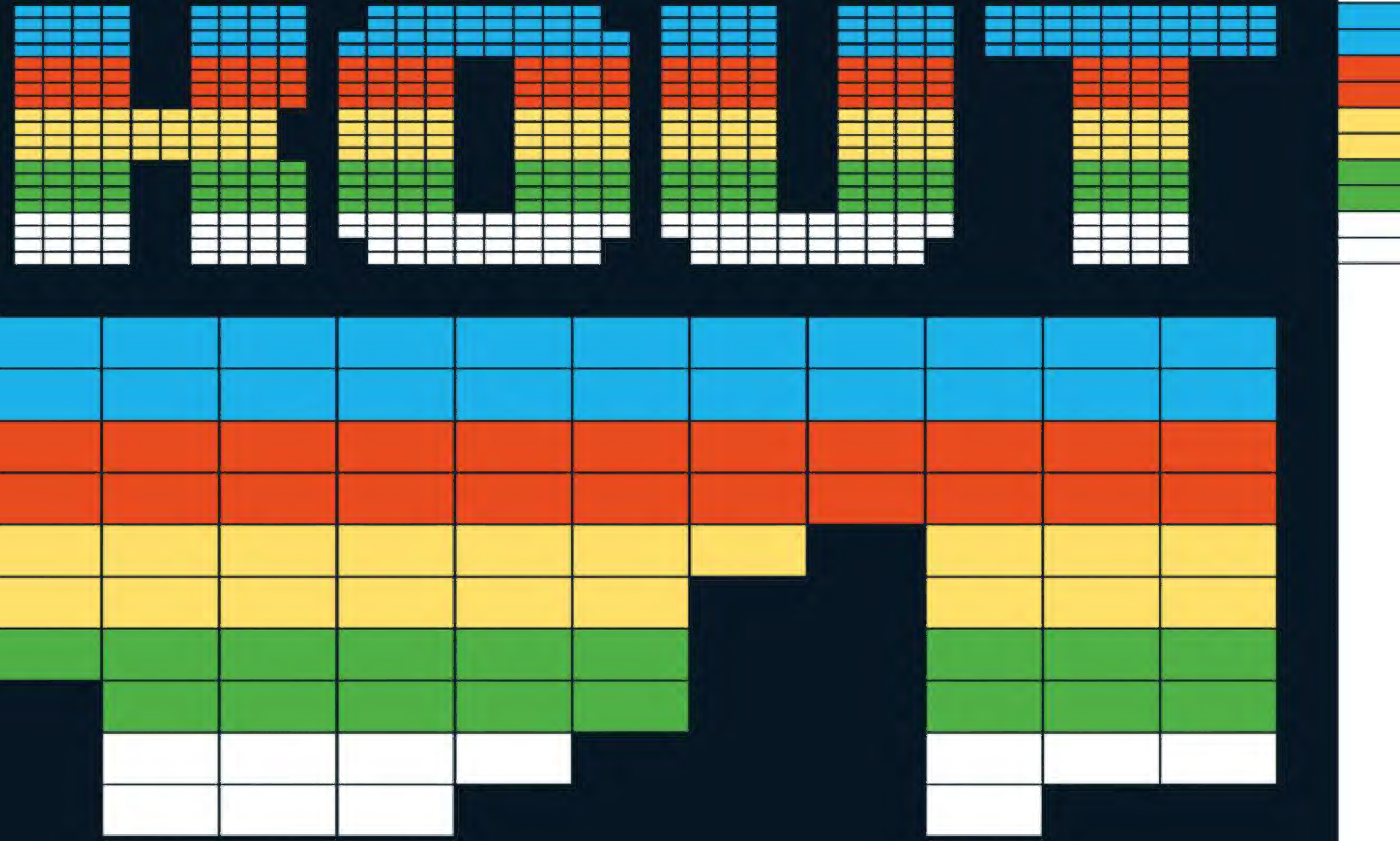
While *PONG* was famously based on the game of ping pong, *Breakout*'s roots can be traced to racquetball, a sport which had become very popular in the Seventies thanks to a fitness boom occurring around the time of its inception. When Atari founder Nolan Bushnell and *TANK* creator Steve Bristow began brainstorming ideas for a new electronic game, they saw lucrative potential in an electronic version of the indoor sport and hoped it would become Atari's most successful *PONG* variant to date.

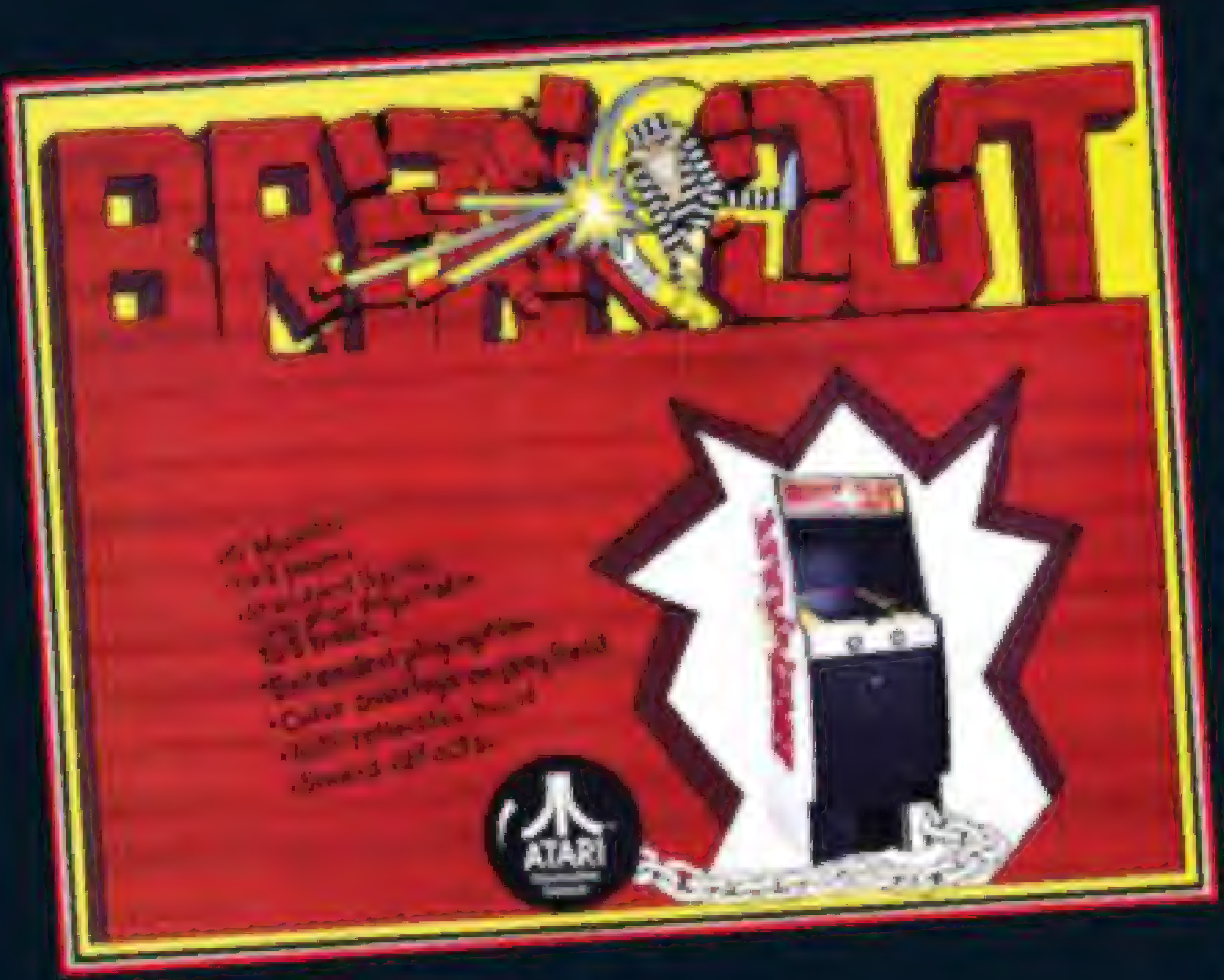
There was, however, a concern: the worry that hitting a ball against a wall could become tedious, and players would quickly tire of its gameplay. Thinking up ways to spice it up and make the concept more exciting, they came up with the idea of having players break down a wall of bricks and destroy it completely. This deft tweak to the formula would not only give players a goal to meet but also help distance *Breakout* from its seminal forerunner.

While *Breakout*'s concept is accredited to Nolan Bushnell and Steve Bristow, the person responsible for first realising *Breakout* is Apple Computer co-founder Steve Wozniak, who was working for Hewlett Packard at the time. He got brought into the picture through his friendship with fellow Apple founder Steve Jobs, then working as a technician at Atari.

So the famous story goes, Nolan Bushnell challenged Atari's engineers to create a prototype of his racquetball game idea with as few integrated chips in it as possible. At the time, none of the engineers was interested, since many viewed bat-and-ball games as outdated. So when Jobs said he was interested in tackling the project, despite having little engineering experience, it was given to him.

In truth, Nolan and *PONG* creator Allan Alcorn gave it to Jobs as they had a feeling – though didn't let on at the time – that he would involve





» Although it was originally based on racquetball the flyer and art featured a prison theme.

Wozniak. Jobs had introduced Wozniak to the men prior to the project, when he invited him to Atari to showcase a home version of *PONG* he'd economically created with very few chips and which featured rude commentary when the ball was missed. Impressed and amused by his effort, Allan Alcorn apparently offered Wozniak a job there and then, but Wozniak declined as at the time he didn't want to quit his job at Hewlett Packard.

As Nolan and Allan had predicted, Jobs did approach Wozniak to create *Breakout*. However, Jobs wasn't completely straight up with his friend about the carrot Nolan had dangled in front of his engineers.

Nolan said he would award $100 for every chip removed from the game, and with most games typically containing between 100 and 170 chips, this posed an attractive opportunity to make a nice amount of money. Jobs reputedly told Wozniak that Atari was paying $700 (which was the normal design fee), which the men would split. A bonus of $5,000 was also paid, but wasn't mentioned. Jobs also stipulated that the project needed to be finished in four days. In truth, Atari put no such deadline on the project. He simply had a plane to catch.

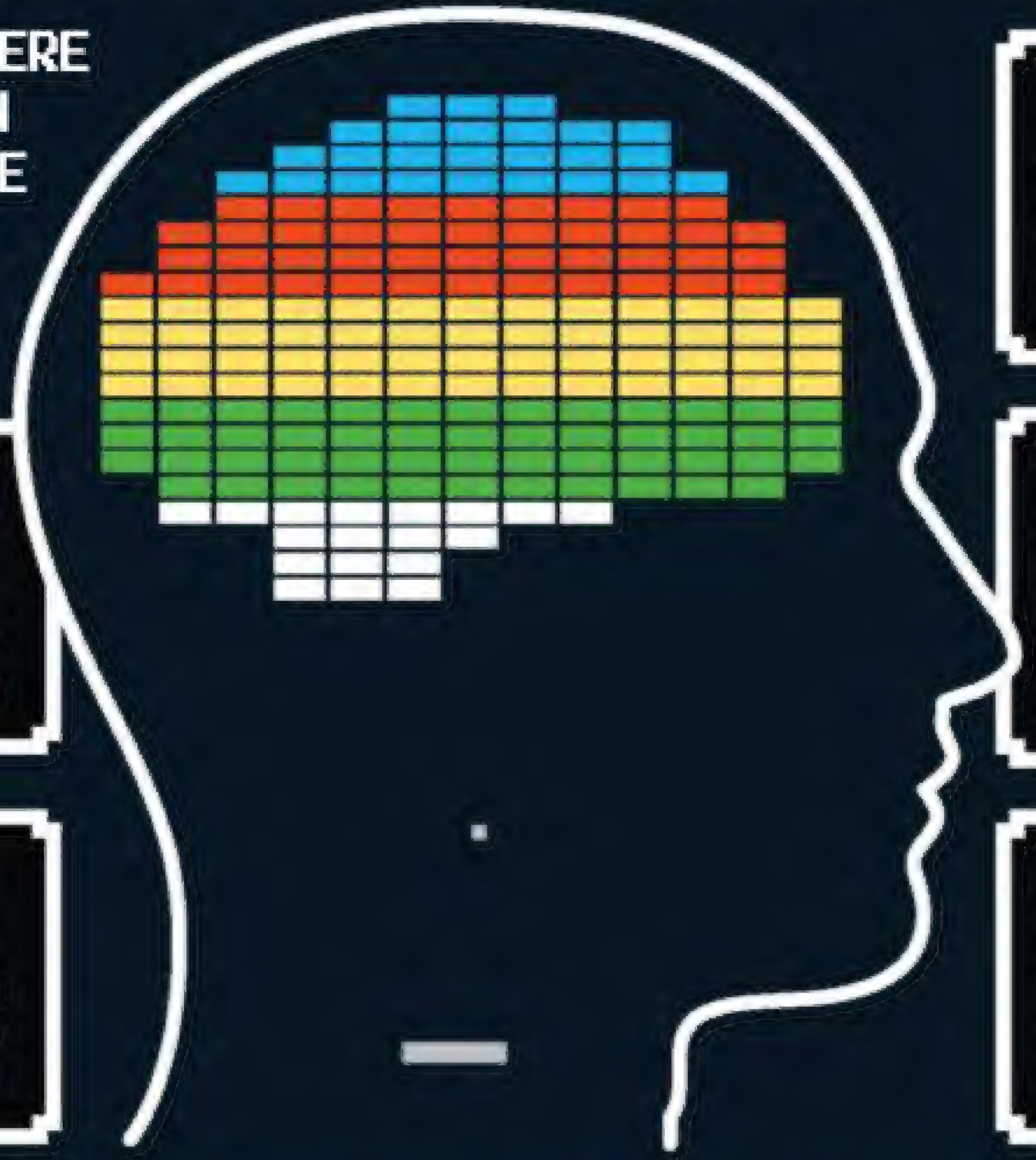
Faced with this staggeringly tight deadline (typically, at that time, hardware design would take a few months), and working from Nolan's game design explained by Jobs, four days and four sleepless nights later saw Wozniak rise to the challenge. The first version of *Breakout* was born. When the prototype turned up in Allan Alcorn's office a few days later, he was stunned. "I was quite surprised! I had no idea it was being developed at all and surprised that Jobs did it since he wasn't an engineer. I soon found out that Woz did it", he remembers.

But the turnaround wasn't the only thing that impressed him. Wozniak's *Breakout* was such an impressive piece of chip limitation that when he and Atari's engineers began scrutinising the board they were amazed by its intricacy.

"It was difficult to build the design that Woz did as normal engineers had trouble ▶

THE BRAINS BEHIND BREAKOUT

DESPITE ITS SIMPLICITY THERE WERE MANY MEN INVOLVED IN BREAKOUT'S CREATION. THESE ARE THE BREAKOUT MEN AND THE ROLES THEY PLAYED...



NOLAN BUSHNELL

■ Bushnell is credited for coming up with the original concept behind *Breakout*. Following a fitness boom in the Seventies, and the rise of the sport of racquetball, he sought to create an electronic version of the indoor sport.

STEVE BRISTOW

■ After impressing at Kee Games, Bristow was brought back into Atari and made its VP of engineering. Once there, he and Bushnell brainstormed gaming ideas, one of which included the racquetball *Pong* idea that became *Breakout*.

STEVE WOZNIAK

■ Wozniak is the man who created the prototype version of *Breakout*. Not an employee of Atari at the time, Wozniak was approached to engineer it by his friend Steve Jobs and was paid just $350 for his work.

STEVE JOBS

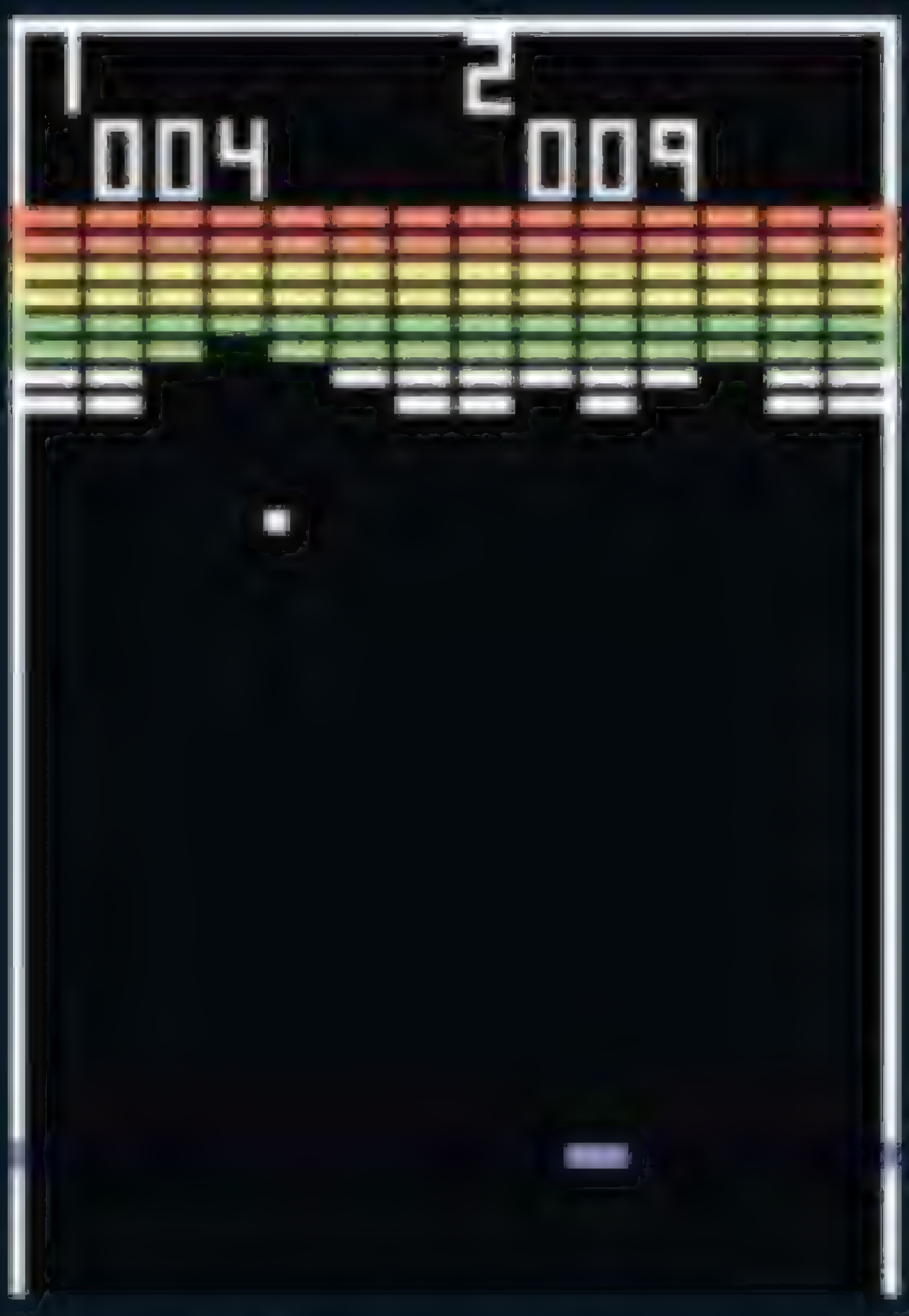
■ Jobs was employed as a technician for Atari at the time of *Breakout*'s inception and is the person who pulled all the strings to make it happen. He took Bushnell and Bristow's racquetball game concept to Wozniak and recruited him to bring it to fruition.

GARY WATERS

■ The man who engineered the final released version of *Breakout*, Waters was employed by Atari subsidiary Cyan Engineering. Waters was given Wozniak's board and told to recreate it in a way that could be easily mass-produced.

▶ understanding how it even worked", smiles Allan. "It wasn't released as a product until we got a normal engineer to redesign it so it could be understood, built and tested. It went from about 20 chips to around 100. But it was a great game."

Wozniak's version used RAM to store and track the blocks, which at the time was costly. Moreover, this first version was missing integral finishing-touch elements like coin control and sound. It also didn't have two-player capabilities. Therefore, as Allan says, Atari took the decision to redo the game from scratch, using Wozniak's version as a 'starting point'.



» [Arcade] *Breakout* was another example of a classic arcade game that originated from a very simple idea. Little wonder it's been constantly copied over the years.

This job fell to Cyan Engineering, a firm based in Grass Valley, California, which Atari had struck up a strong partnership with during its fledgling years. The Cyan engineers were seen by Atari as the go-to guys for specialist engineering jobs, so it seemed the perfect company to redo Wozniak's *Breakout* and create a version fit for mass production. The final released version was engineered by Cyan's Gary Waters, and though it wasn't as economically constructed as Wozniak's (it was said to have used around 100 chips), from the outside at least it emulated it very closely – it was 'virtually identical' Wozniak would later admit.

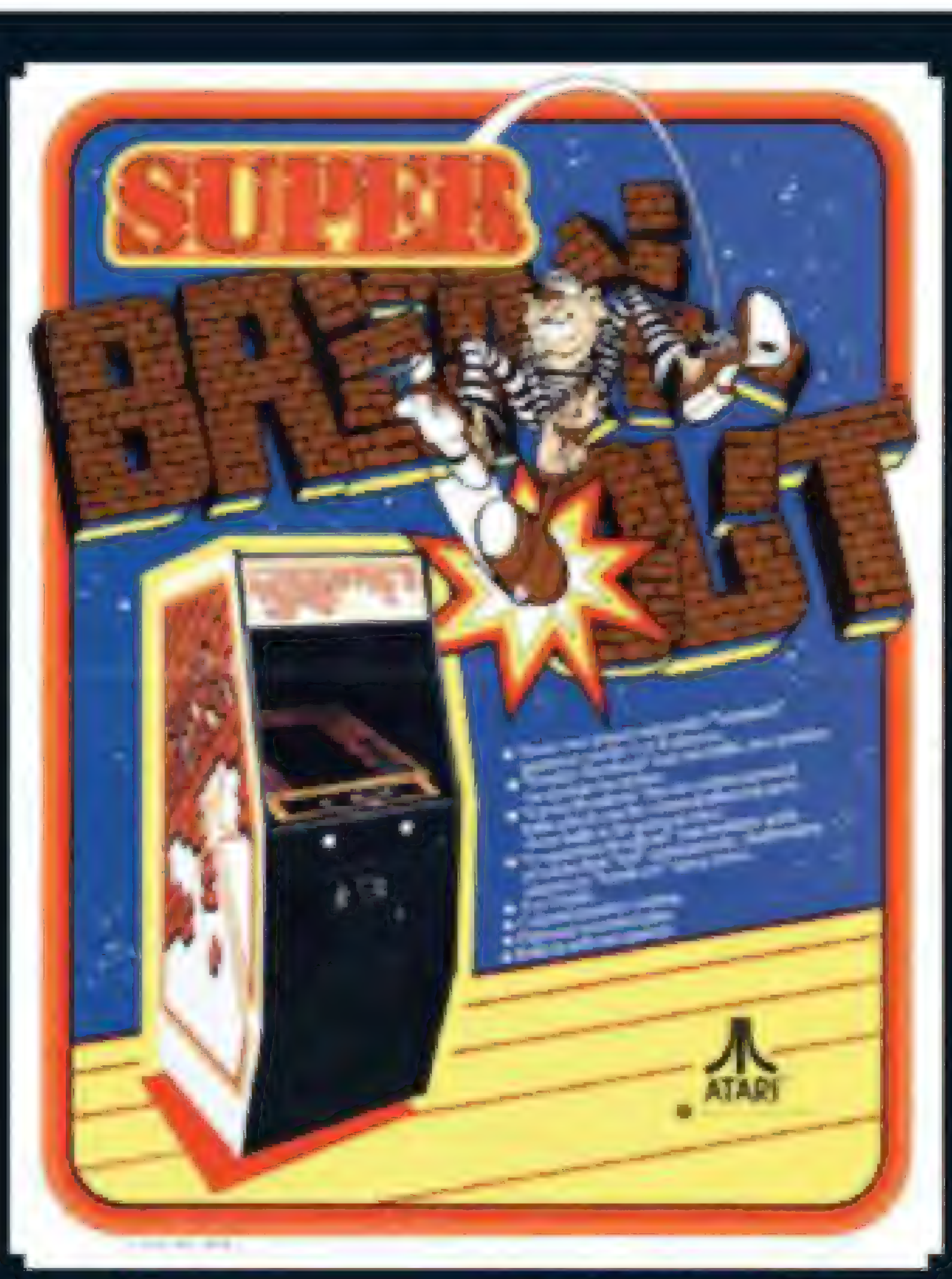
Released in April 1976, *Breakout* became another Atari success story. It was one of the earliest coin-op conversions for the 2600, and because of its popularity and simple design spawned countless clones, cementing its classic status.

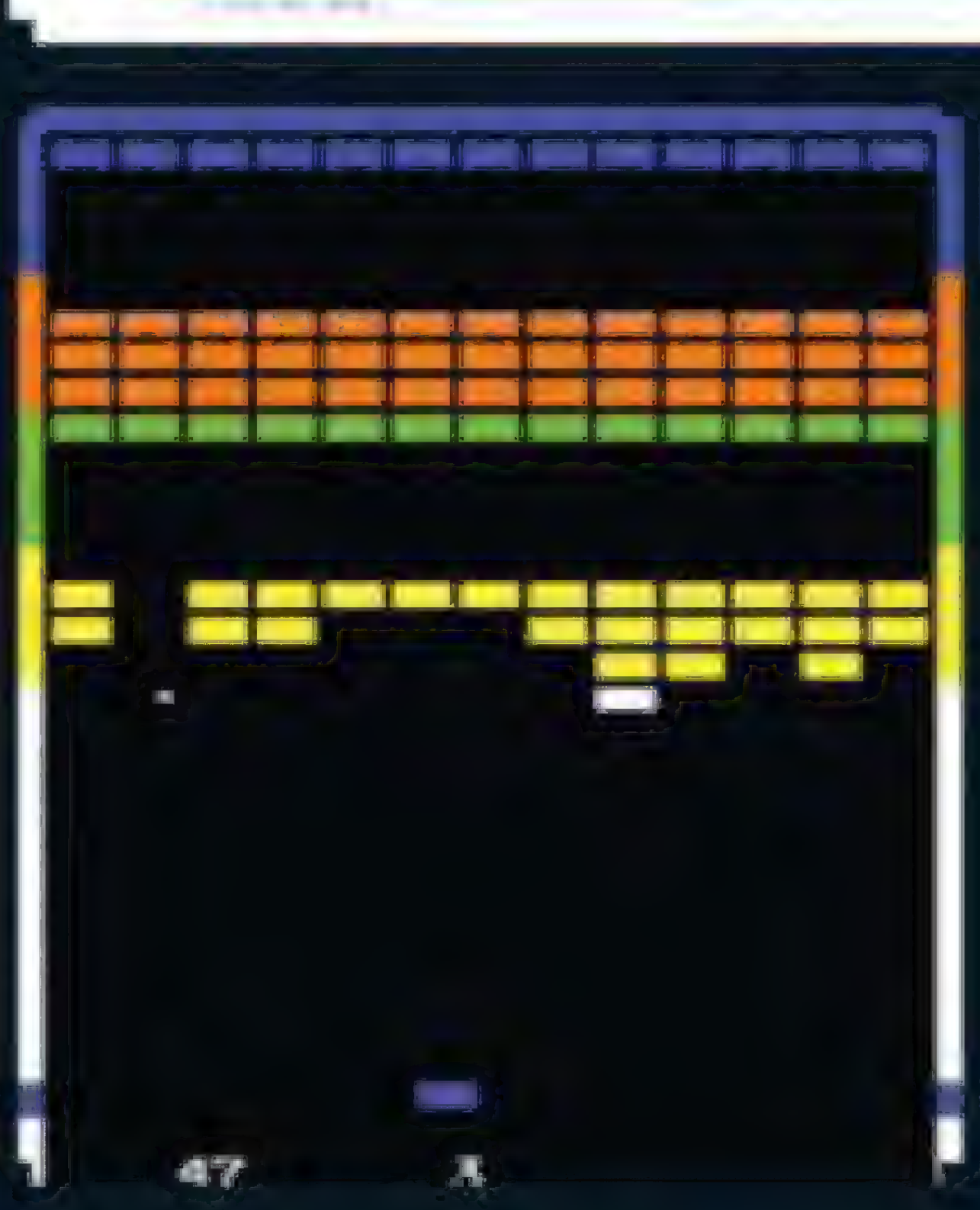
As to why *Breakout* became so popular? It's conceivable that the reason might lie with its destructive gameplay, which was pretty novel for its day. Its gameplay also famously inspired the games industry-rescuing shoot-'em-up *Space Invaders*, though Taito would later pay a more exact homage with *Arkanoid*.

Breakout was also a game that was very easy to understand and simple to pick up. It had simple controls (left and right movement) and if the ball was missed there was no question you were to blame. Its playfield comprised eight rows of tiles at the top of the screen, with every two rows displayed in a different colour that was added by strips of coloured cellophane. Colour wasn't there to simply make the game look pretty, though – it also denoted the amount of points players could earn. But *Breakout* had more going on under its simple exterior; the speed of the ball would increase over the course of the game and upon reaching the final red layer of tiles, the bat would shrink in size.

The first *Breakout* sequel, *Super Breakout*, was released in 1978. It was developed by *Asteroids* programmer Ed Logg and was one of the legendary programmer's earliest projects for Atari.

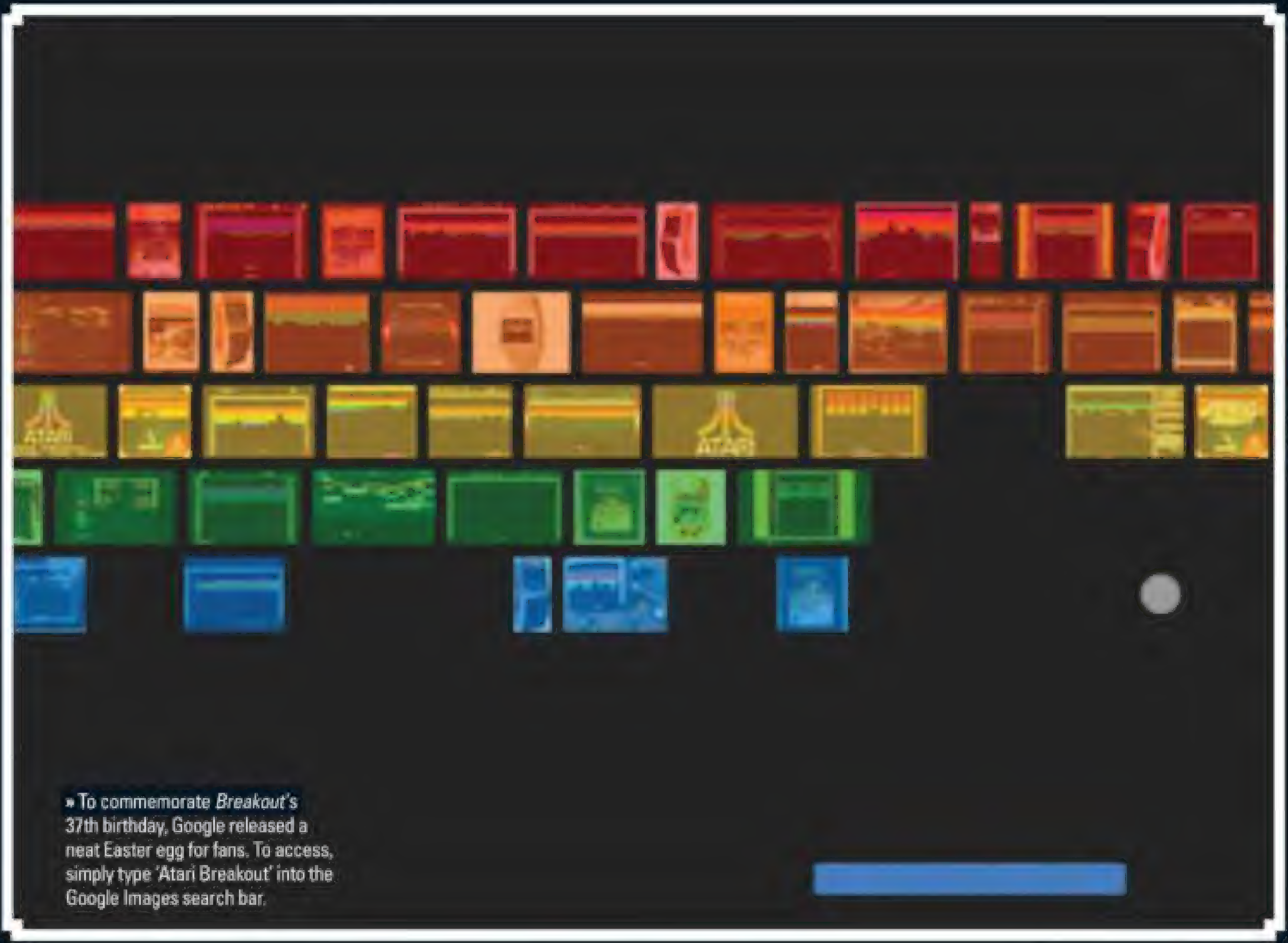
"I started work at Atari in February 1978," recalls Ed. "I was assigned to work on *Dirt Bike*, *Avalanche* and a large submarine game. All had been started or completed by Dennis Koble. *Avalanche* was about to go into production but *Dirt Bike* took most of my time. *Super Breakout* was started without the usual management approval process and was done only during downtime from *Dirty Bike*. I probably started it sometime in April 1978. When I was waiting for a new paper tape for *Dirt Bike* (yes, that is what we used to load into the development system), I would swap graphic EPROMs and load the *Super Breakout* tape and debug it. I believe this was the first time anyone





» Initially *Super Breakout* appeared to be an exact copy of the original game, but Ed Logg added plenty of clever little gameplay touches to spice things up.

» [Arcade] *Super Breakout's* 'Progressive' Mode had the wall inching ever closer towards you. It starts to make return balls very difficult.



» To commemorate *Breakout's* 37th birthday, Google released a neat Easter egg for fans. To access, simply type 'Atari Breakout' into the Google Images search bar.

at Atari was working on two games literally at the same time."

> "THE IDEAS FOR SUPER BREAKOUT CAME FROM A DISCUSSION ANOTHER EMPLOYEE (OWEN RUBIN I BELIEVE) SAID THEY HAD WITH NOLAN BUSHNELL. THIS INCLUDED MULTIPLE BALLS, MULTIPLE PADDLES, VERTICAL COLUMNS ETC" **Ed Logg**

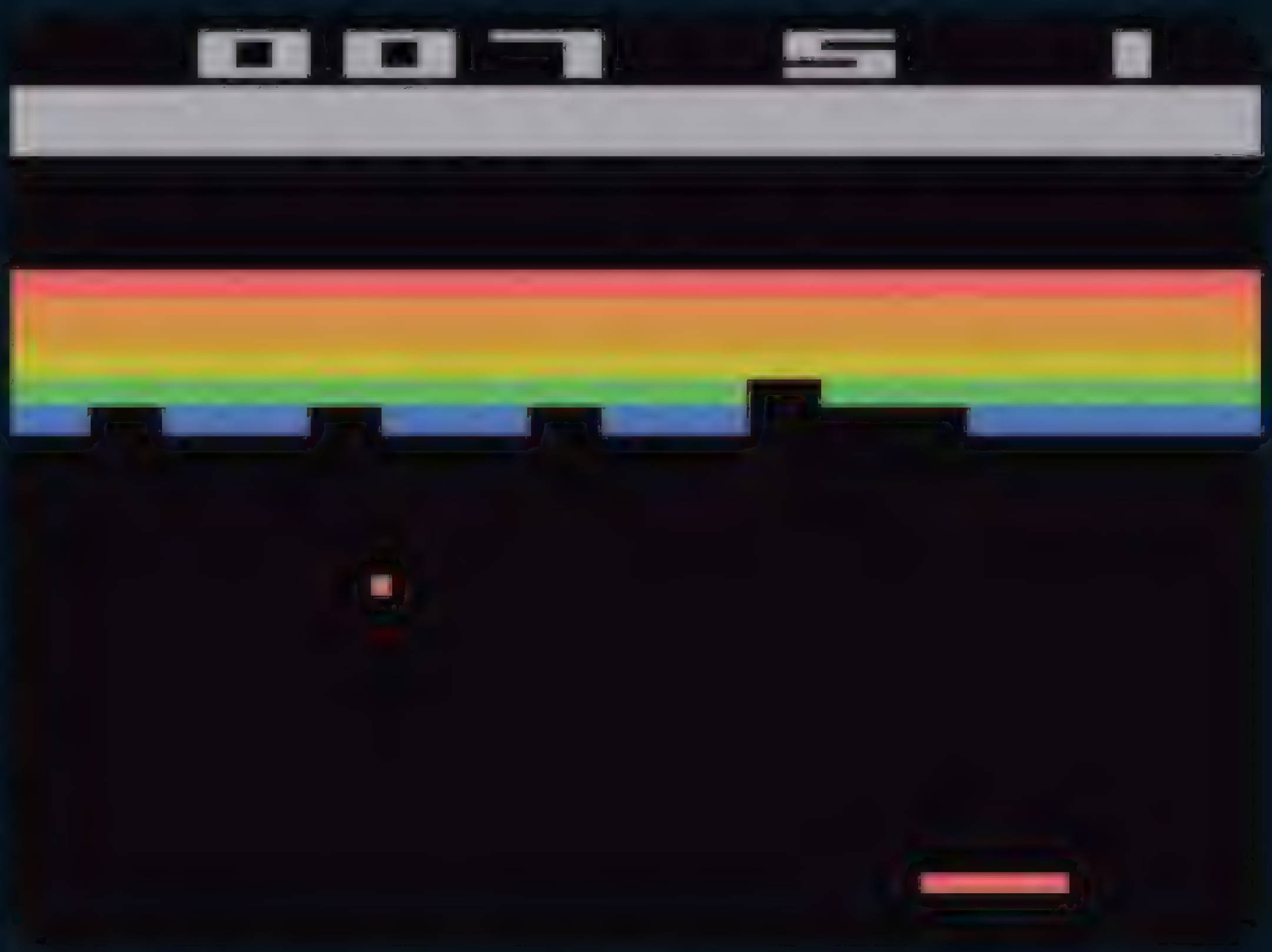
Given how successful *Breakout* was, it's surprising to learn that Atari appeared quite nonchalant about a follow-up, taking its time to create one and then seemingly relegating it to a side-project to be worked on while focus and efforts were spent on new projects. Despite this, *Super Breakout* was a more than worthy sequel, capturing the essence of what made the original instantly engaging while adding some welcome variety to its brick-smashing gameplay.

Unlike *Breakout*, which was created entirely in hardware, *Super Breakout* was programmed for the 6502 microprocessor. This meant it had to be written entirely from scratch, as none of the original game logic could be repurposed. From a less technical viewpoint, the thing that made *Super Breakout* different from its predecessor was that it offered players three different game modes. The first, 'Double Breakout', tasks players with trying to break down two lots of four rows of tiles, one row sat slightly beneath the other, with two balls that you bat back using two paddles stacked on top of each other. The second, 'Captivity', sees players trying to free two extra balls stuck in cavities. If a second ball is released, the score earned from hitting tiles is doubled, and if three are in play the score is tripled. The final mode is 'Progressive', which plays in a similar vein to *Space Invaders* (released in Japan the same year as *Super Breakout*) with two sets of brick walls edging closer to the paddle, moving faster as the game progresses.

According to Ed Logg, originally six modes were planned but only three made it into the finished game. "Besides the three modes released, there were three others with vertical columns. My idea was to release two versions of the game with three different versions in each. Unfortunately, three modes were more popular than the others so only they survived in the released game. It was interesting to see some of the same game ideas used in *Arkanoid*."

So where did these different game modes originate? "The ideas for *Super Breakout* came from a discussion another employee (Owen Rubin I believe) said they had with Nolan Bushnell," Ed reveals. "This included multiple balls, multiple paddles, vertical columns etc. There may have been multiple paddles on Atari 2600 (VCS) games at the time, so it is possible it came from some VCS game."

Given the prison break theme that *Breakout's* gameplay would ultimately be tied to (dropping the original racquetball concept that kicked off the whole concept originally, though this returned for the 2600 port's packaging), it's amusing to learn of an incident involving Ed that saw him almost ▶



» [Atari 2600] *Breakout* was so popular that Atari soon ported it to its home console. It's an okay version, making good use of the console's paddles.

> "[WOZNIAK'S BREAKOUT] WASN'T RELEASED AS A PRODUCT UNTIL WE GOT A NORMAL ENGINEER TO REDESIGN IT SO IT COULD BE UNDERSTOOD, BUILT AND TESTED. IT WENT FROM ABOUT 20 CHIPS TO AROUND 100. BUT IT WAS A GREAT GAME" **Allan Alcorn**

getting accused of stealing his own game.

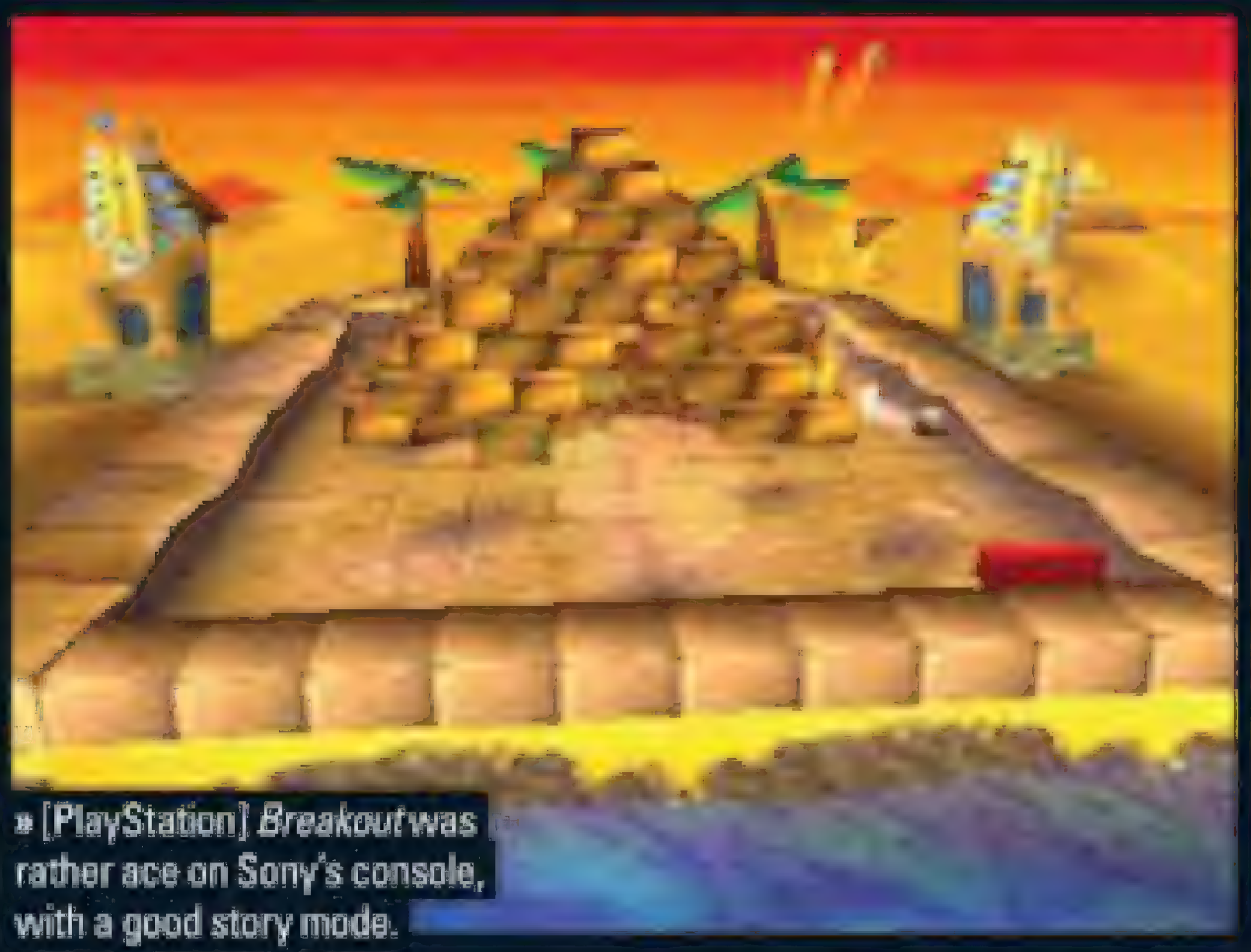
"When we were finished field-testing our games, Atari allowed us to buy the prototype and take them home," remembers Ed. "I did this for *Super Breakout*. However, the Consumer Division of Atari wanted to create a VCS game so I lent them my cabinet to play upstairs in the same building. Well, many months later I wanted to take it home so I went upstairs and took it home, probably on a Friday… I came back the next week and I heard that they believed someone had stolen their game. I told them it was my game and I took it home, but they insisted the game was theirs. I am not sure how this got resolved but it did."

There was no activity in the franchise for a long time after *Super Breakout*. Though many *Breakout* clones would carry the torch, it would take many years for another sequel to appear.

Breakout 2000 was one of a small number of Atari arcade classics reimagined for the Atari's ill-fated Jaguar console (others included *Missile Command* and *Tempest*). Developed by L4 Software and Telegames, it borrows a few ideas from Taito's *Arkanoid* but adds a few of its own.

Offering two game modes, Classic and Breakout 2000, the first is pretty much just a straight remake of the arcade original, while the latter is a colourful update that adopts a slanted viewpoint that makes it look a little like *Klax*. In *Breakout 2000*'s levels the action is expanded by handy pick-ups that can be collected and alter aspects like ball speed, paddle size, and give access to a useful auto-firing gun to blast away tiles with. It's also the first *Breakout* to feature a dual mode: a head-to-head *Breakout* game that allows players to knock their ball into their opponent's playing field. Now a rare and collectable game for the console, the only thing that lets *Breakout 2000* down is the controls, which just aren't as responsive as having a rotary control scheme.

The year 2000 then saw the release of *Breakout* by Hasbro, a reimagining of the series that seemed to try to refresh the series by giving it 3D platformer-style makeover. In the mid-Nineties Hasbro had purchased the intellectual property rights of Atari Inc, as well as *Frogger* from Konami, and with them began releasing 3D updates of the firm's beloved coin-op classics including *PONG*, *Centipede*, *Missile Command* and *Breakout*. Developed by Supersonic Software and released for PlayStation, PC and Mac, *Breakout* is a colourful 3D cartoon adventure game tied to *Breakout*'s tile-breaking formula and is notable for tying a story to the gameplay.

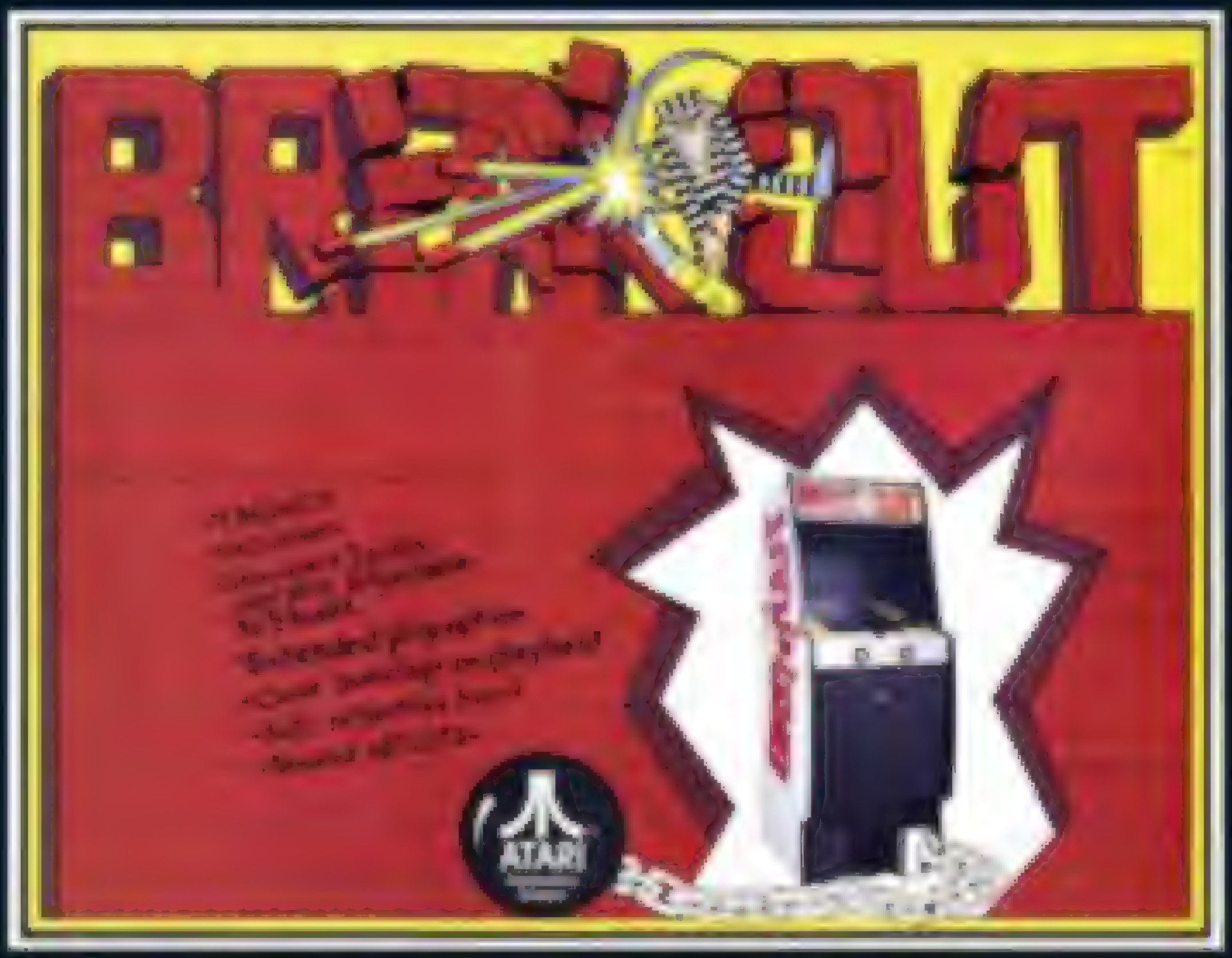

» [PlayStation] *Breakout* was rather ace on Sony's console, with a good story mode.

As a sentient paddle named Bouncer, players have to break him and his friends from prison after they're put there by an evil paddle. Okay, so deep its story wasn't, but the game does hold a certain charm as a result. The game adopted *Breakout 2000*'s 3D into-the-screen viewpoint, and its levels are themed – set in places including a gloomy prison, a castle and even a farm with possessed chickens. Hasbro's *Breakout* also has mini-game stages (one sees Bouncer running towards the screen to escape a hungry wolf), boss battles and different shot types: you can slice the ball and even use the shoulder buttons to angle your shots.

Currently, the last game in the *Breakout* series is the iOS game *Breakout Boost*. As you would expect, it makes use of the touch-screen controls of Apple's devices, offering comfortable single-finger controls more in line with the responsive rotary controls of old. Overall, *Boost* delivers a nice portable version of *Breakout* and has some interesting features. Destroying certain tiles can cause bonus point capsules to cascade down the screen and there's a selection of useful power-ups too. It also adds a neat in-game bar that allows you set the speed of the ball on the fly – the faster the ball travels, the more points you earn from smashing tiles. The only things that mar the experience are in-app purchases (you only get 15 levels for free and additional map packs, which contain anywhere between 50 to 80 levels, cost 69p each) and an annoying advert that flashes up after each non-purchased level is cleared.

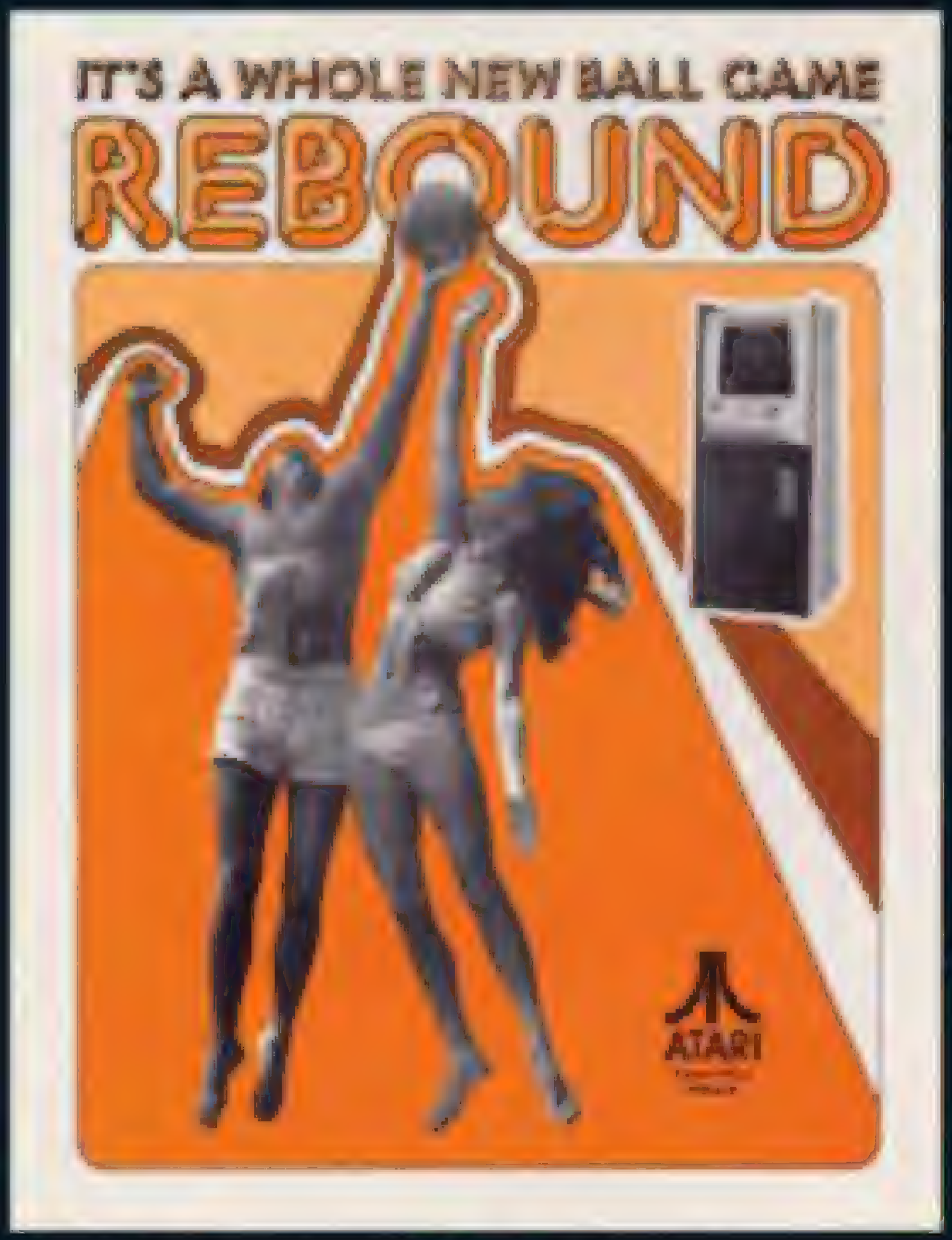
PONG LEGACY

Following Pong's success, several variants of the game have appeared. Here are some notable examples



BREAKOUT

■ Inspired by a racquetball boom, *Breakout* became a big hit in its own right and was a big inspiration for Tomohiro Nishikado when designing *Space Invaders*.

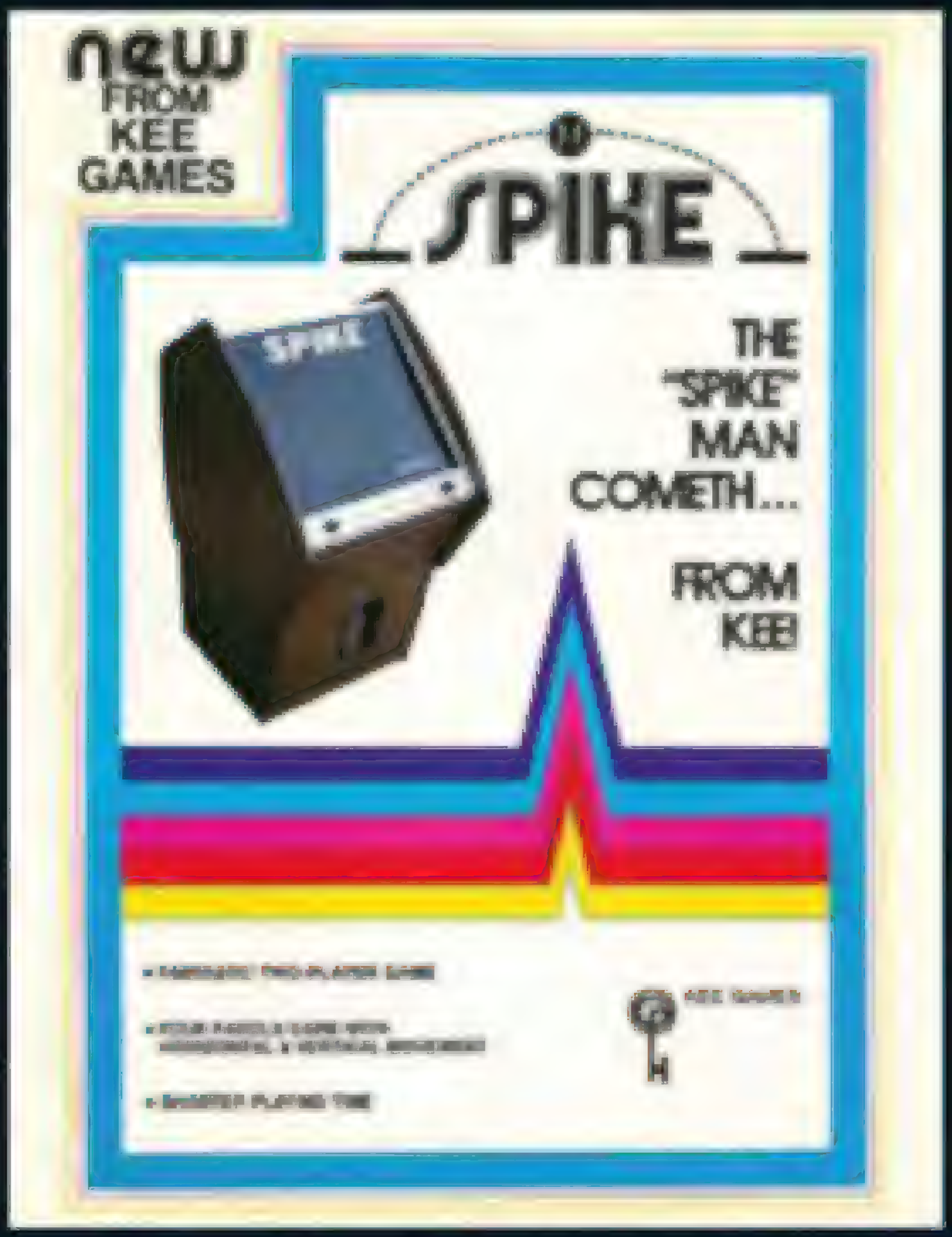

IT'S A WHOLE NEW BALL GAME
REBOUND
ATARI

REBOUND

■ *Rebound* saw the paddles turned 90 degrees and players volleying a ball over a net at the centre of the playing field. It was also released as a *Pong* upgrade.

SPIKE

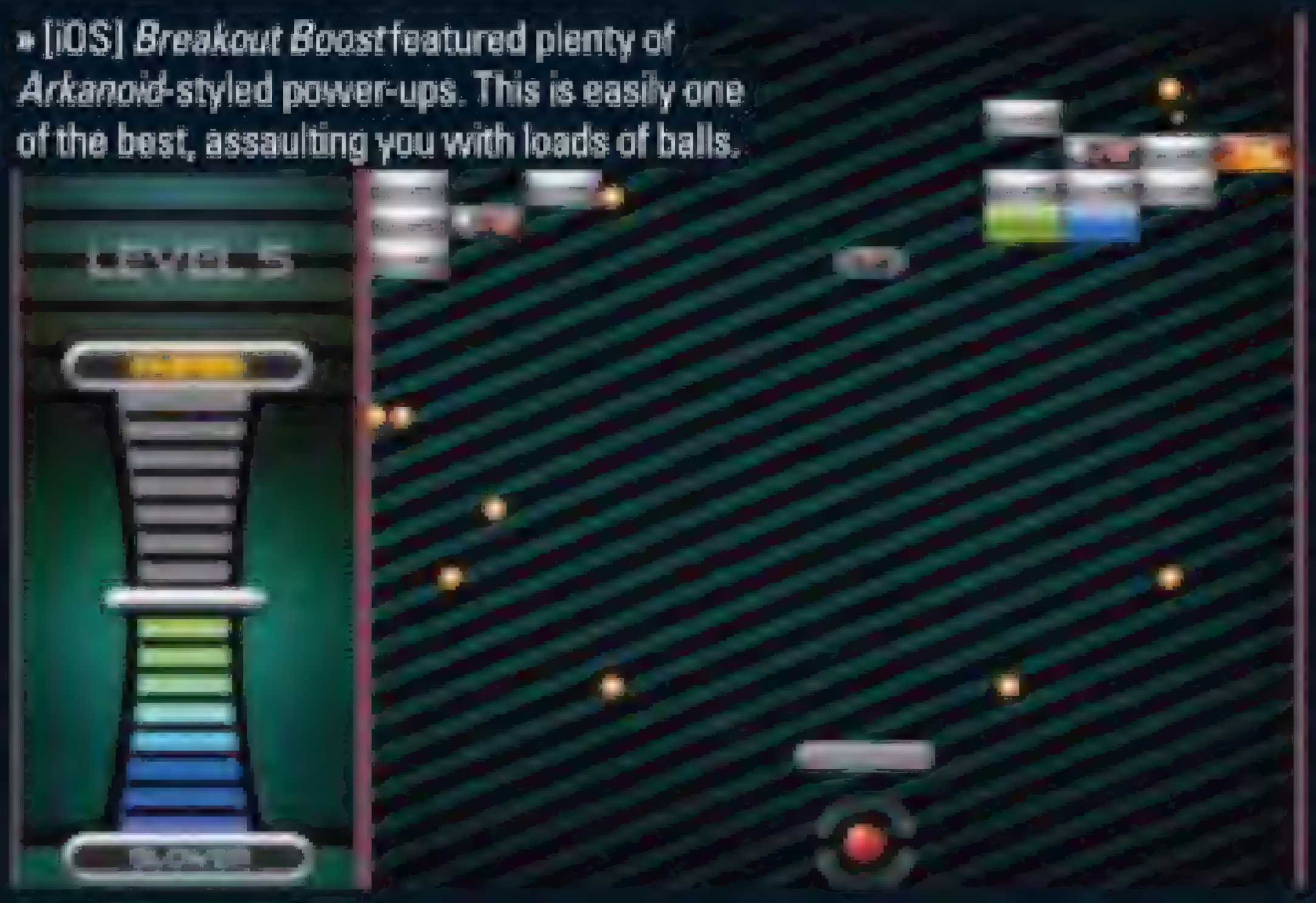
■ A *Rebound* clone manufactured by Atari's surreptitious subsidiary Kee Games. Kee's version is notable for adding a button that allowed players to perform a spike shot.



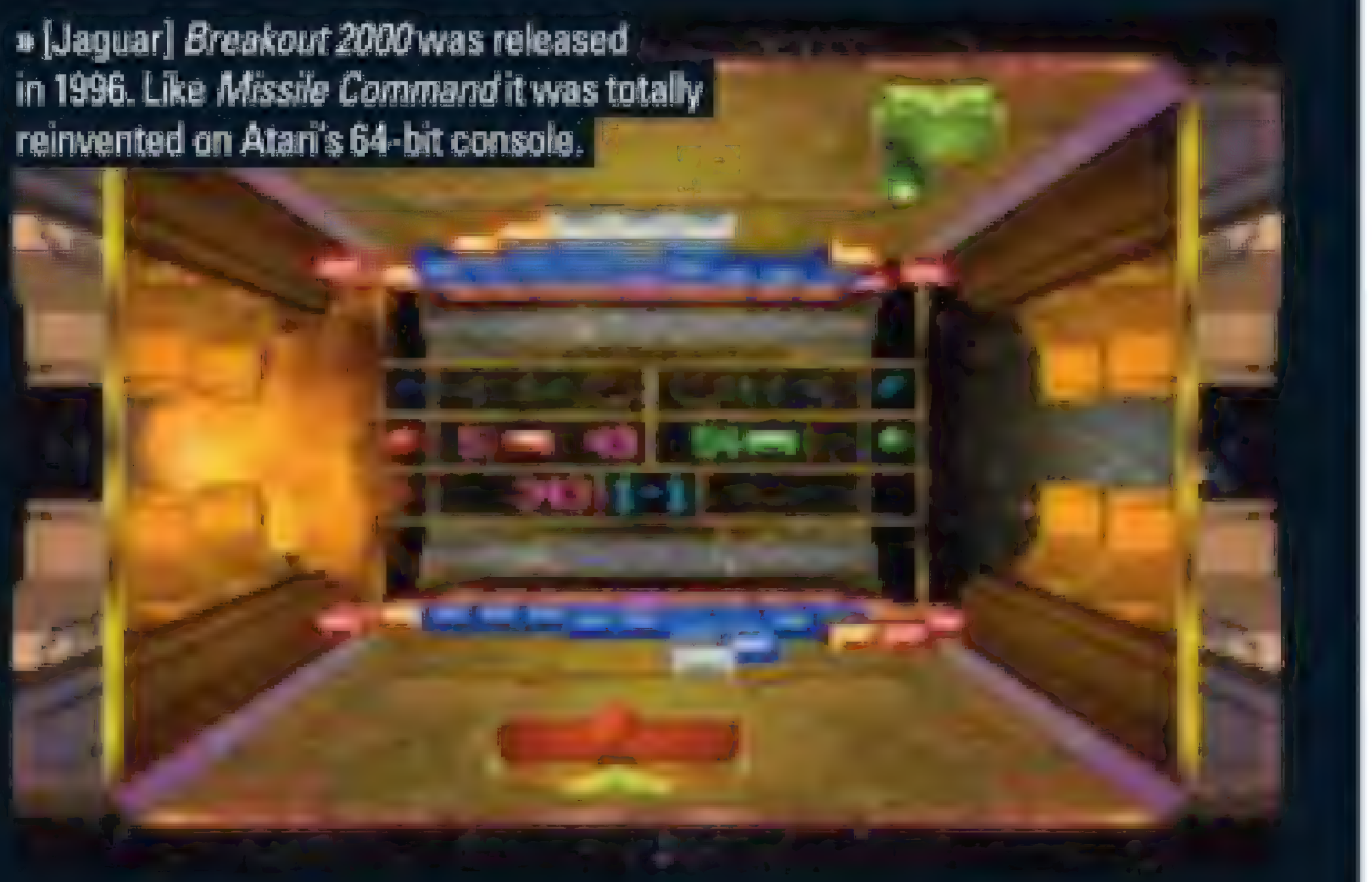
BREAKOUT 2000
ATARI
JAGUAR

» [Jaguar] *Breakout 2000* was a decent update for the series, adding interesting power-ups and a new viewpoint.

» [iOS] *Breakout Boost* featured plenty of *Arkanoid*-styled power-ups. This is easily one of the best, assaulting you with loads of balls.



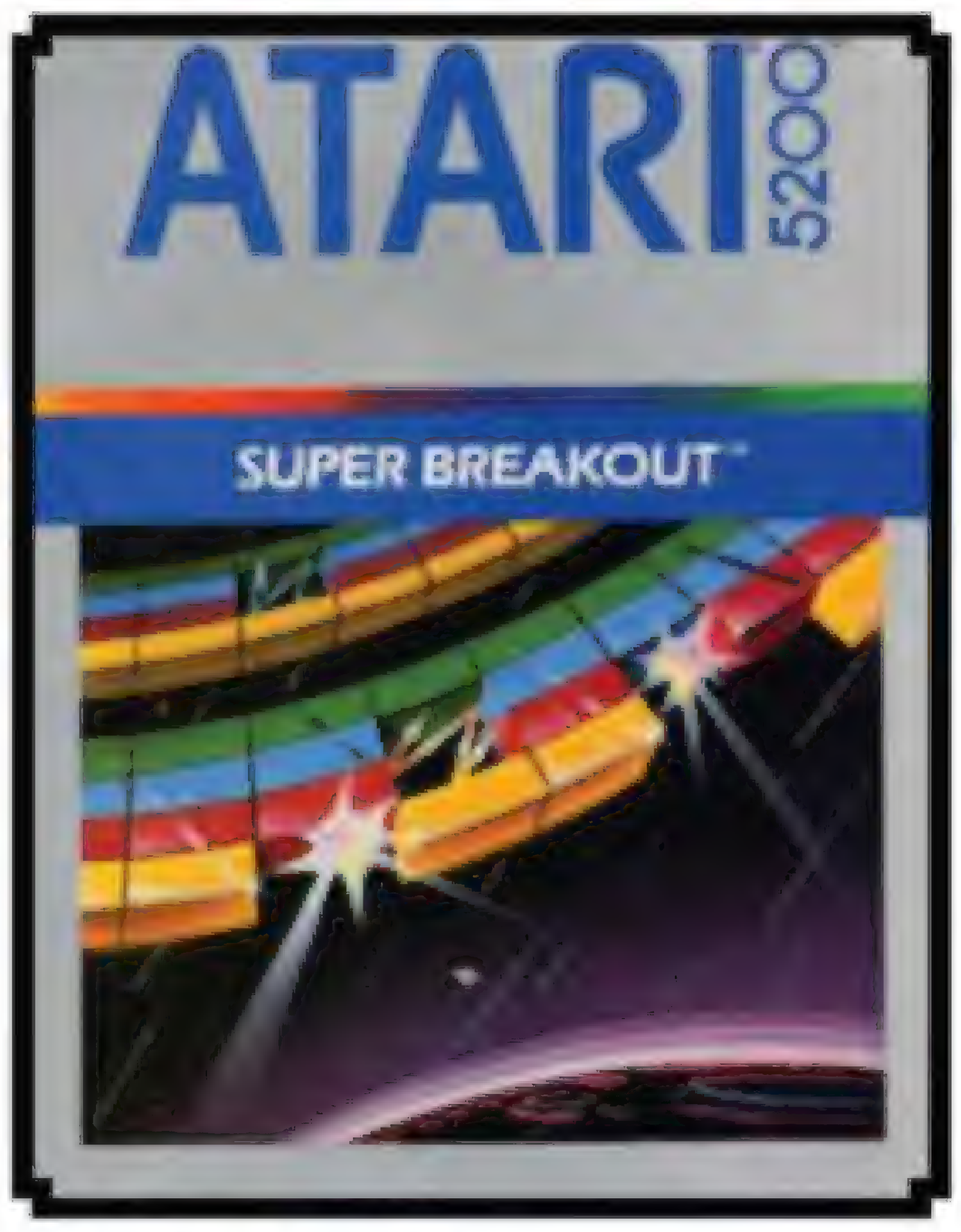
» [Jaguar] *Breakout 2000* was released in 1996. Like *Missile Command* it was totally reinvented on Atari's 64-bit console.



So that's the story of *Breakout*, but what became of Jobs and Wozniak? Well, just prior to *Breakout*'s release in 1976 the two men, along with Ronald Wayne, who Jobs had worked with at Atari, established Apple Computer from inside a garage. After launching their enterprise with the Apple I circuit-board kit computer, what followed was Apple's astronomical rise in the home computer market during the Eighties with the Apple II, the first hugely successful mass-produced home computer.

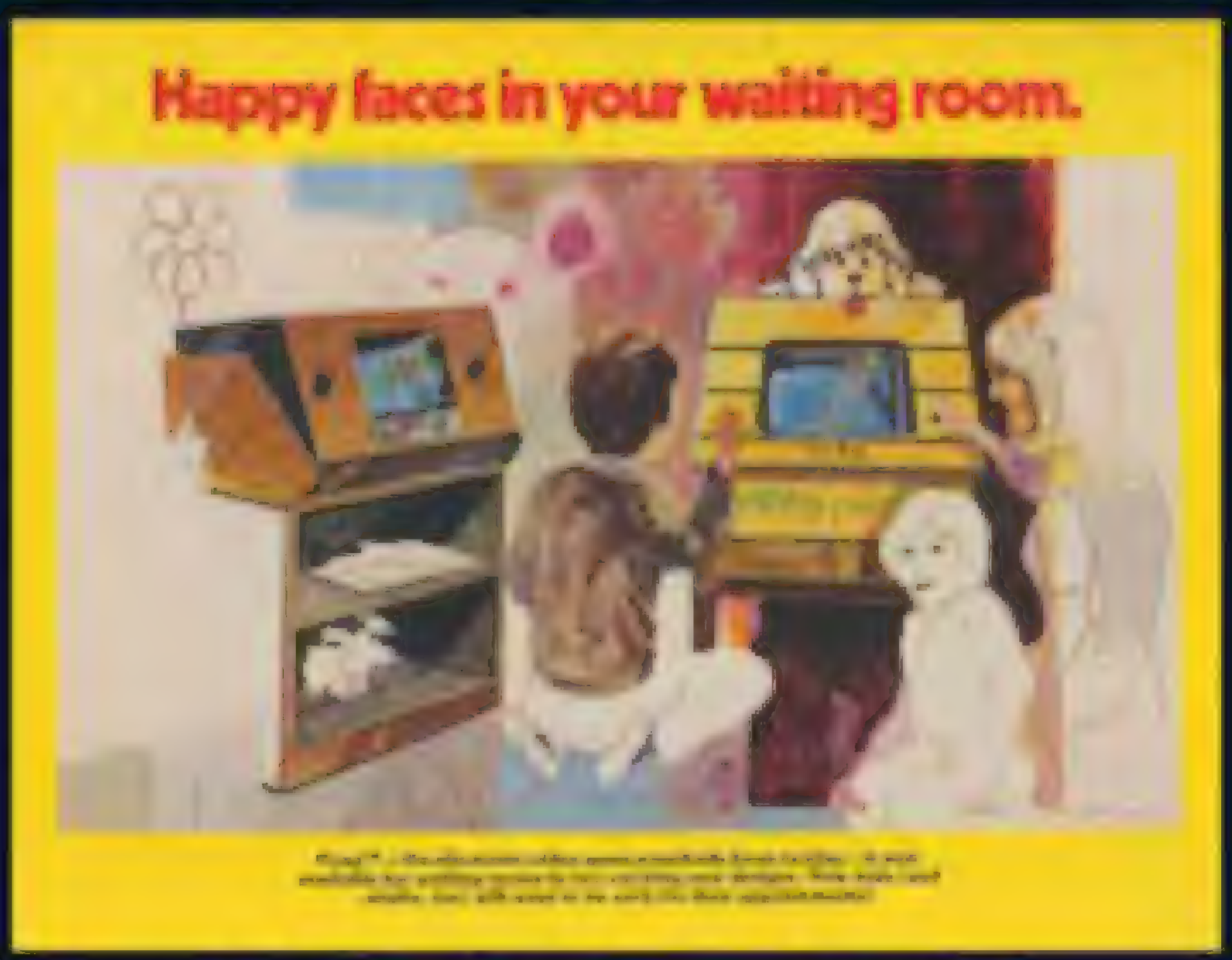
Proving that the truth will always out, several years later Wozniak would learn of Jobs' dishonesty about the *Breakout* fee. Wozniak responded by saying that if Jobs had come to him and said he needed the money, then he would have gladly given it to him.

Imitation has been a part of gaming's growth from the very beginning, and perhaps no game is proof of this more than *Breakout*. It is, after all, a variant of *PONG*, and the clones it inspired far outnumber the sequels it spawned. That it's one of the most uncomplicated concepts in gaming also proves that even the simplest of ideas can become a smash hit (or maybe that should be a hit smash?).



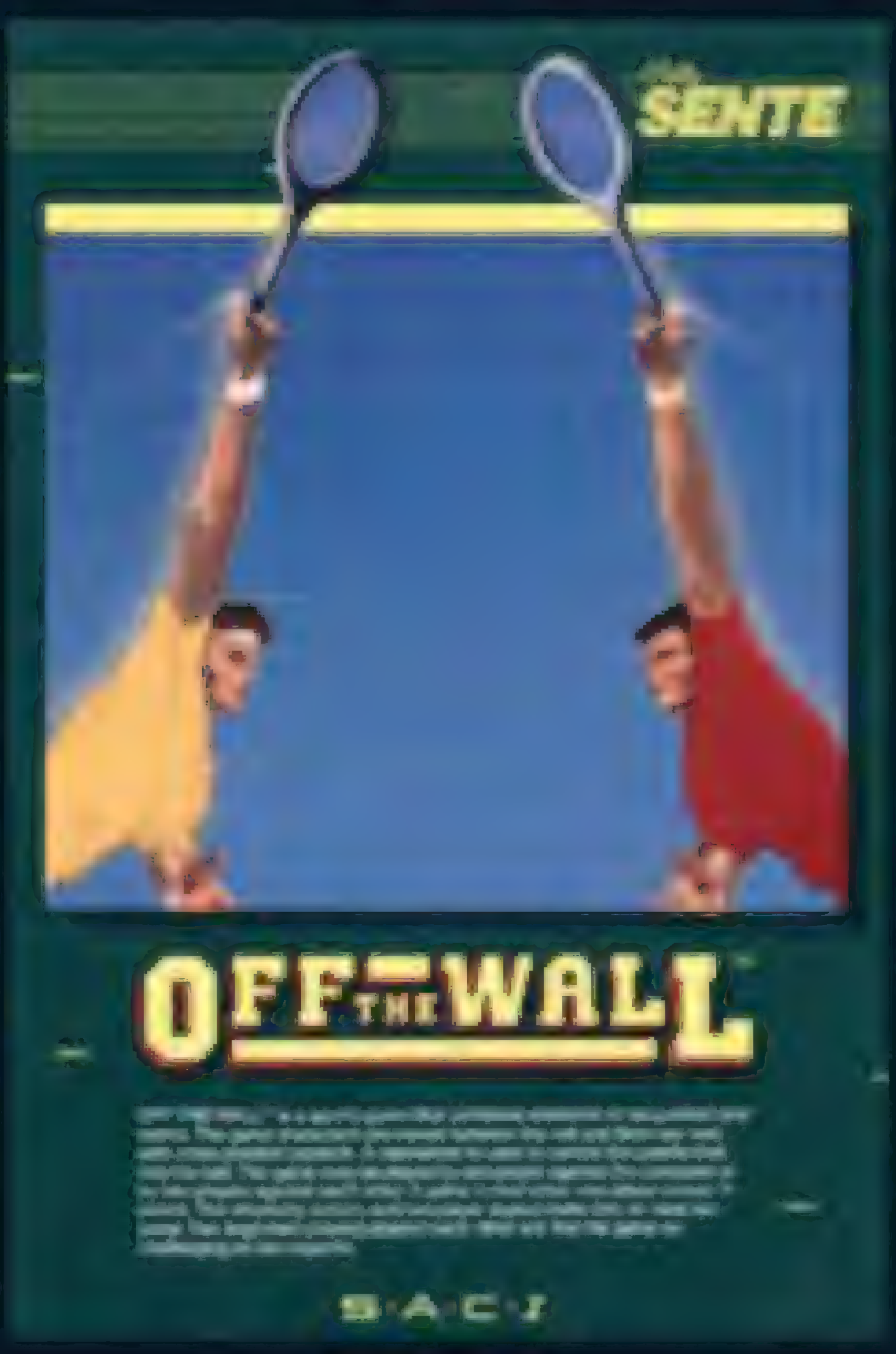
OTHER NOTABLE BREAKOUTS

■ Following *Breakout*'s success, Atari had originally planned to release a handheld version of *Super Breakout* (alongside portable versions of *Touch Me* and a game called *Pin It*) to allow people to the play the game on the go. Now a rare piece of Atari history, only two prototypes are believed to exist after the idea was scrapped. Two versions of *Breakout* also came preloaded on Atari's *Video Pinball* dedicated console in 1978, and sequel *Super Breakout* was a pack-in game for the Atari 5200, though it was poorly received owing to the machine's notorious analogue controller making it a pig to play. Amazingly, the first exact home port of the *Breakout* coin-op (the 2600 port was an approximation of the original) was designed by **Retro Gamer** freelancer Martin Goldberg. It was created for a kids' meal promotion for Taco Bell.


Happy faces in your waiting room.

PUPPY PONG / DR. PONG

■ This free-to-play version of *Pong* was designed to sit in paediatricians' waiting rooms. In essence, a clever strategy to get more kids experiencing and loving *Pong*.

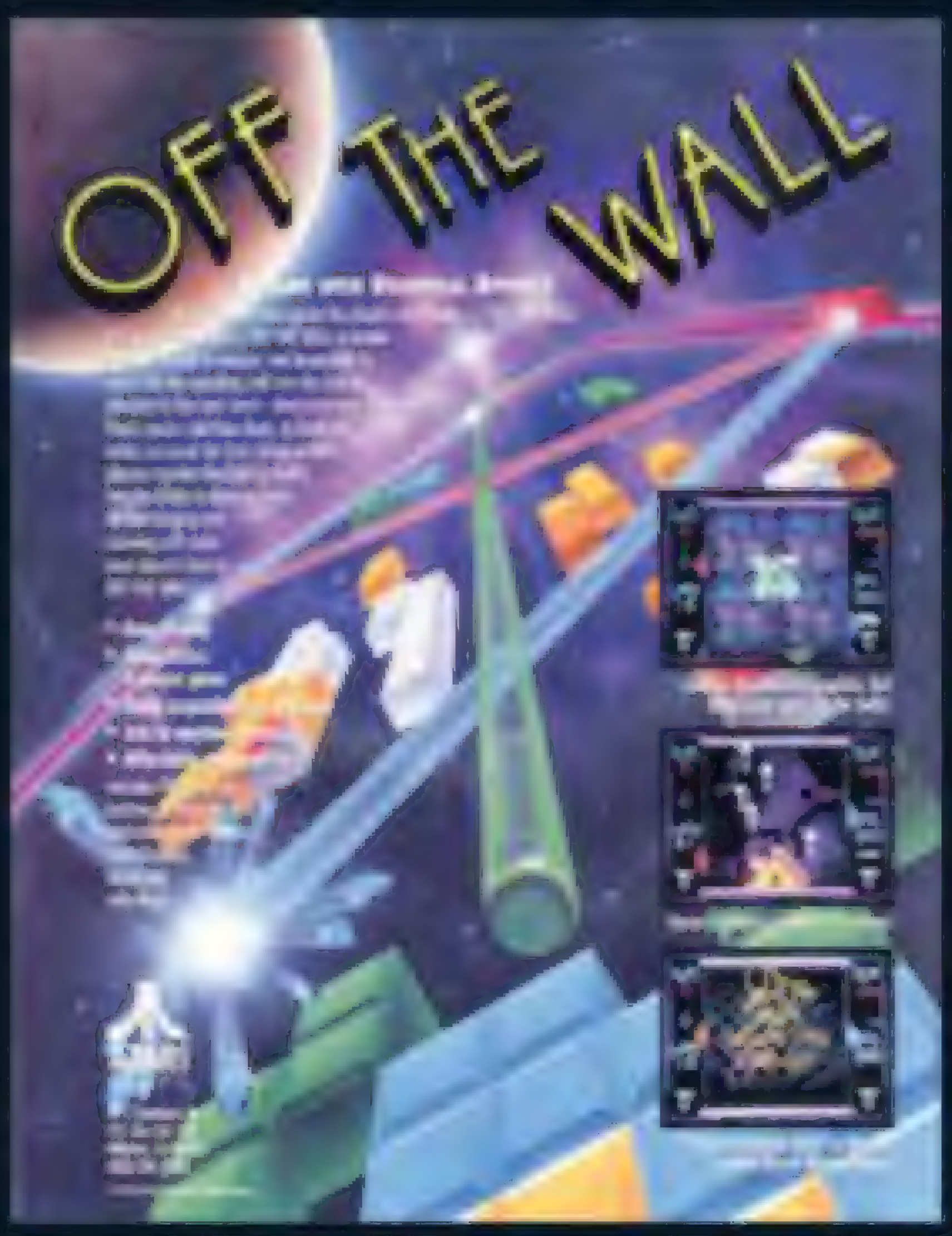


OFF THE WALL

■ Manufactured by Bally-Sente, *Off The Wall* was based on a game concept by Bushnell and was a tennis take on *Rebound*. It allowed you to adjust the racquet-holding arm of its tennis player avatars.

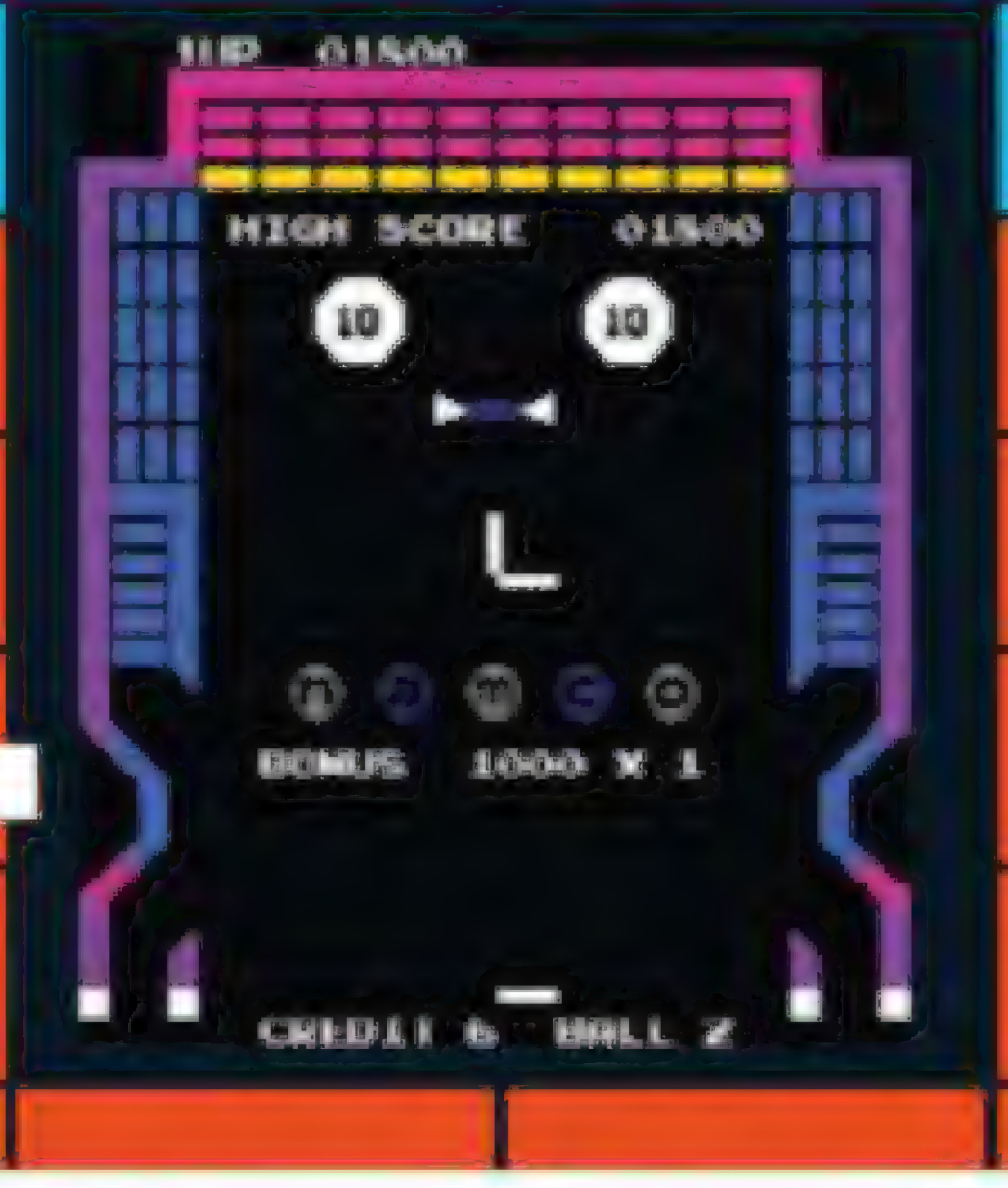
OFF THE WALL

■ No relation to Bally-Sente's game, this *Klax*-style version of *Breakout* saw players breaking tile formations to get the ball to the exit and supported up to three players.



BREAKOUT THE CLONES

THOUGH BREAKOUT HAS ONLY RECEIVED FOUR SEQUELS, IT DID SPAWN A DIZZYING NUMBER OF CLONES. HERE ARE SOME OF THE BEST



GEE BEE (1978)

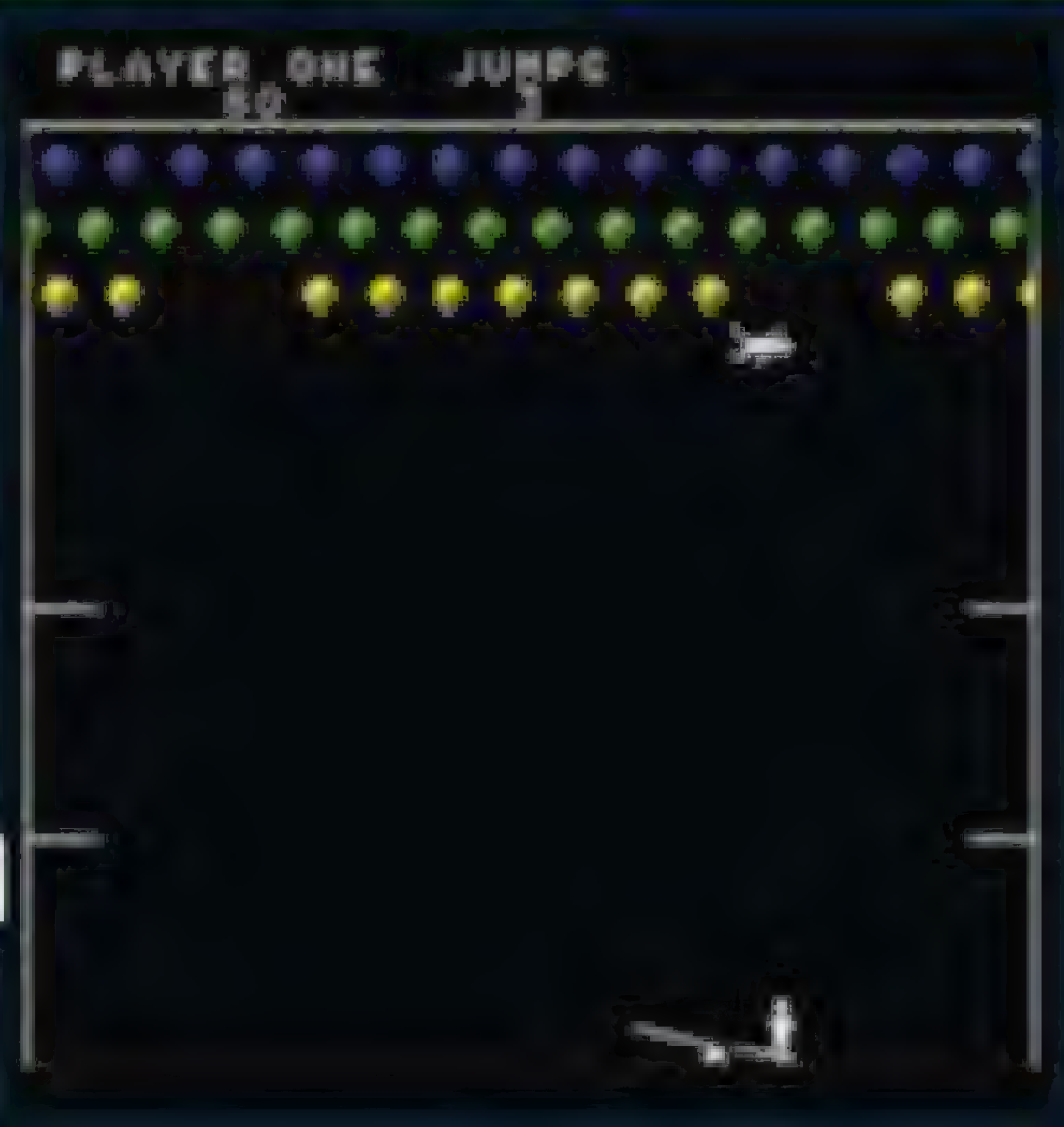
■ Notable for being the first game to be developed internally at Namco, *Gee Bee* was designed by *Pac-Man* creator Toru Iwatani and blended elements of *Breakout* with pinball. The latter influence apparently came from Iwatani's desire to design pinball tables.

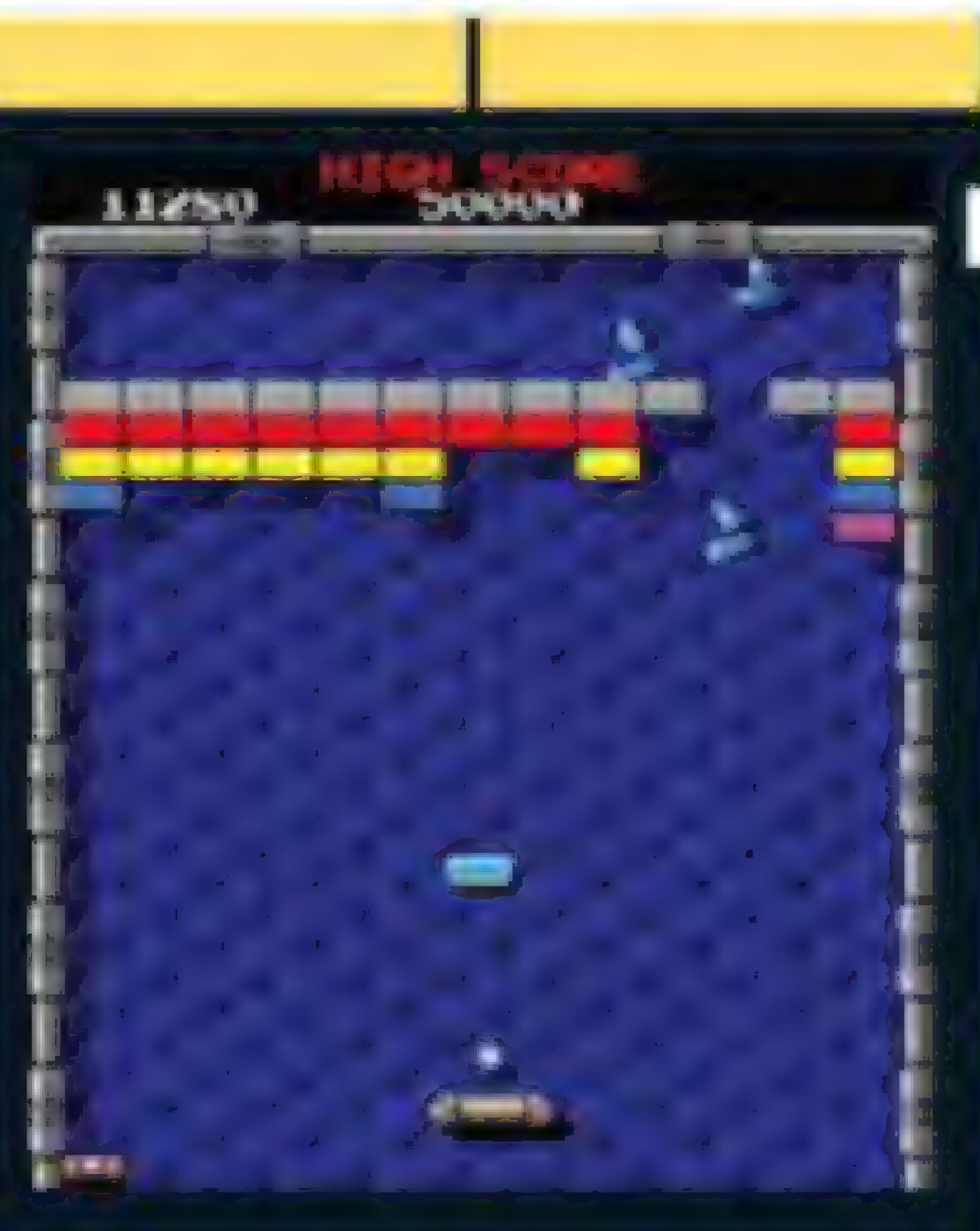
ARKANOID (1986)

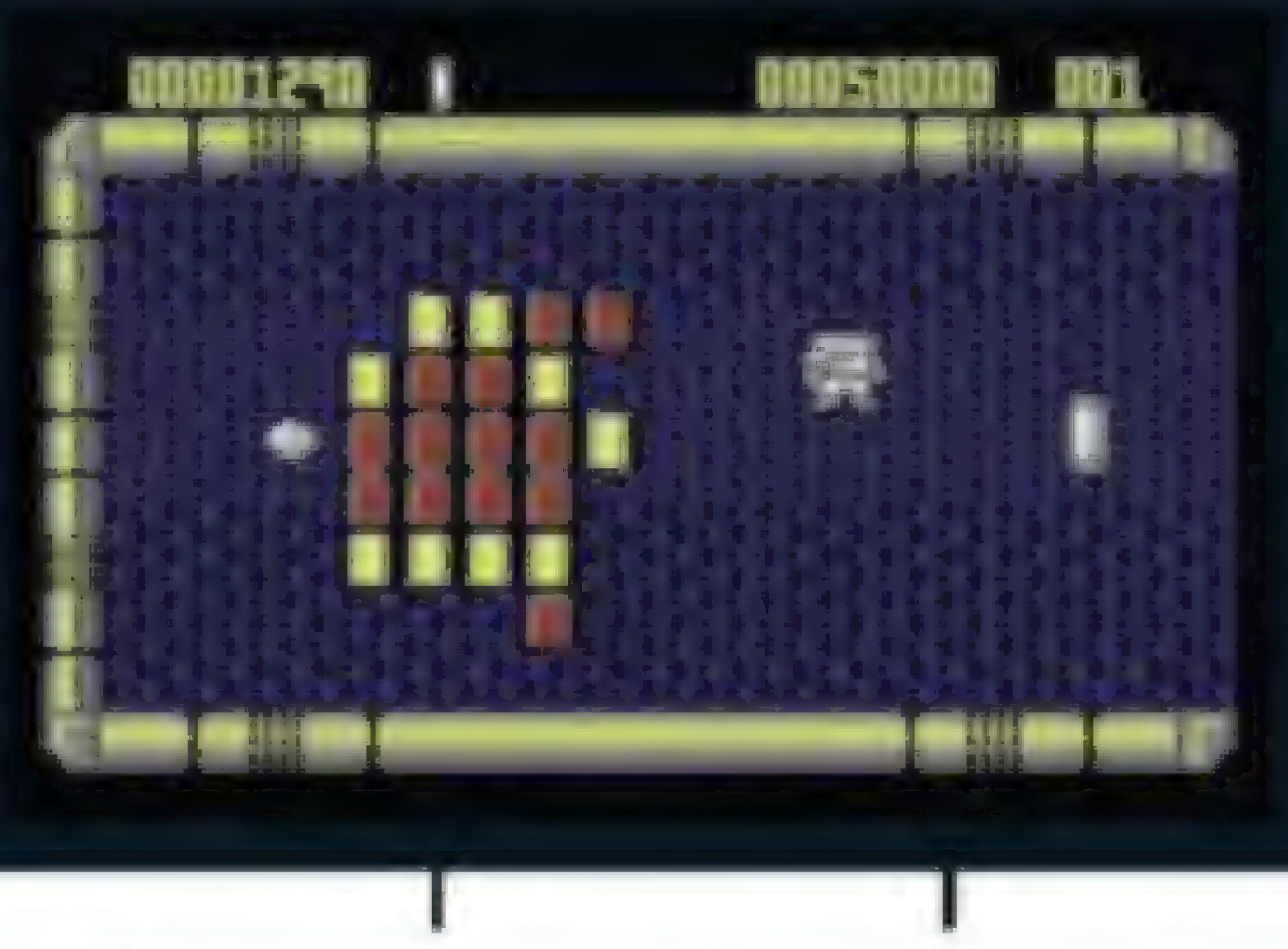
■ Taito loved *Breakout* so much it released its own version, which became a popular franchise and introduced many staples to the genre – from power-ups and different tile types and formations, to enemy targets. Sequels later introduced boss battles and warp gates.

CIRCUS (1977)

■ This early Exidy release is perhaps the first bat-and-ball game to feature humanoid character sprites. The tiles are replaced with scrolling balloons – the paddle, two clowns on a see-saw – but the objective remains the same. A similar-looking game named *Atari Circus* later appeared on the 2600.

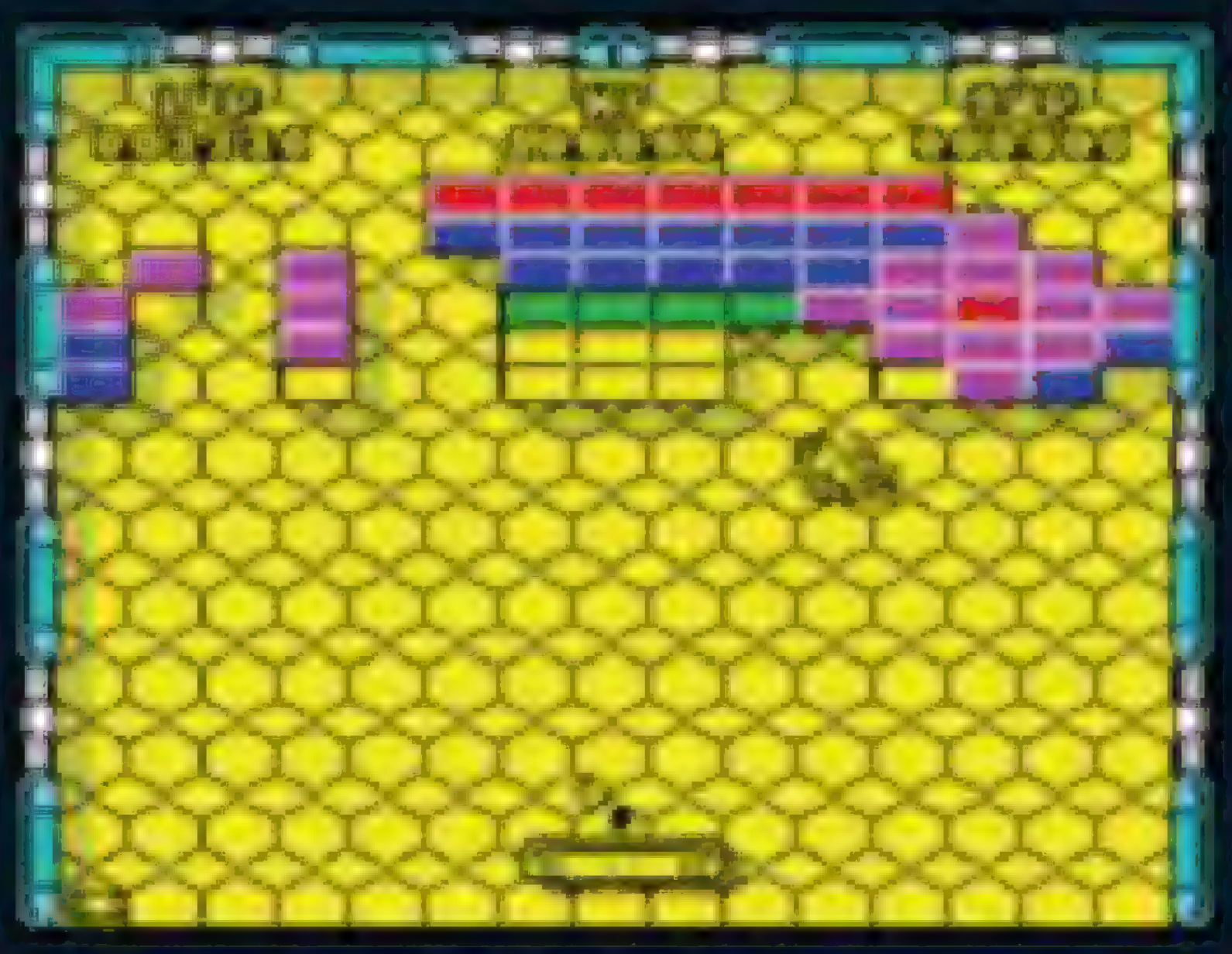






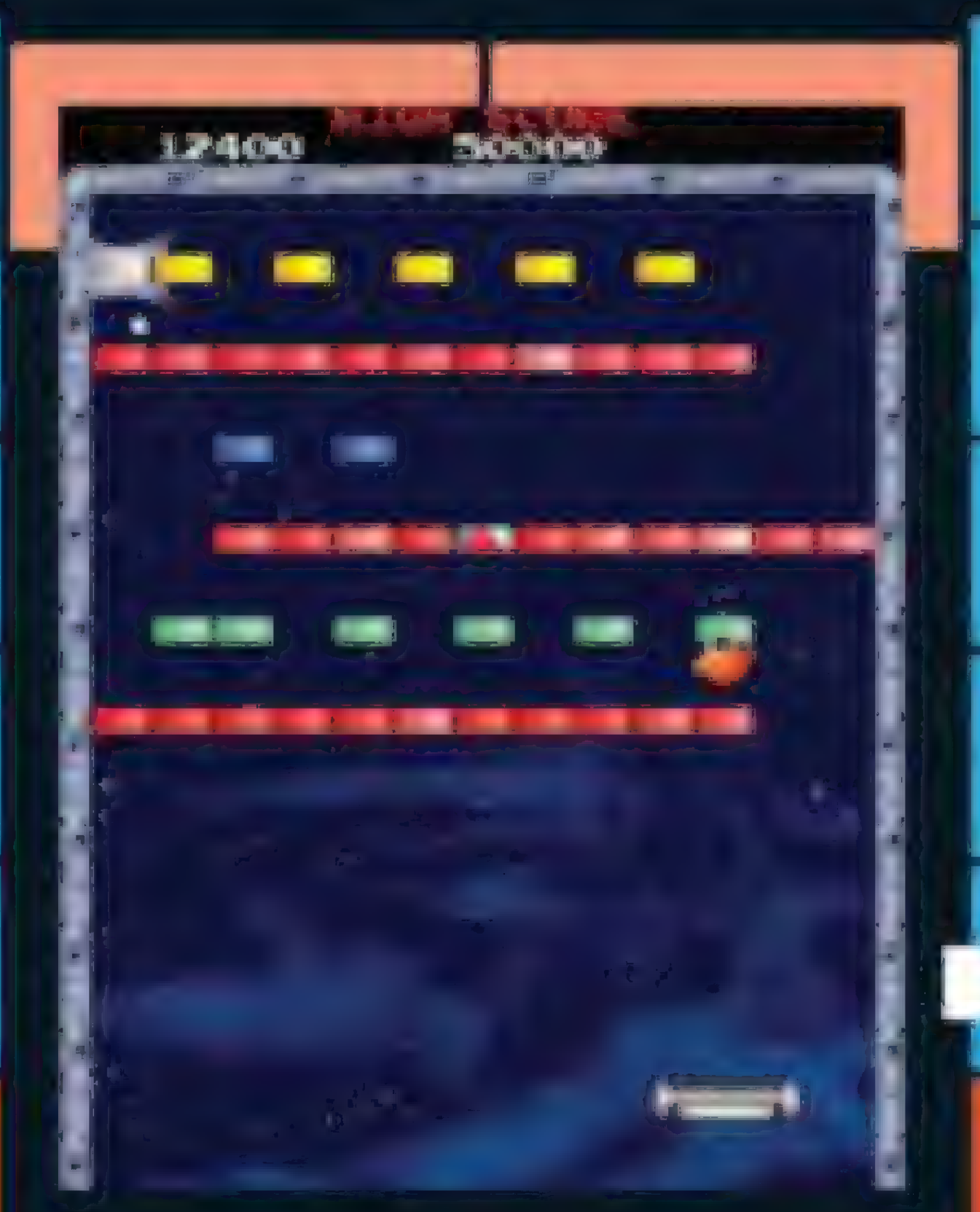
KRAKOUT (1987)

■ *Krakout* is basically a horizontal *Breakout* with kamikaze enemies that must be avoided as they can destroy your paddle. The change in perspective takes some getting used to and doesn't work as well as the classic viewpoint, but it's still an interesting little twist on *Breakout*.



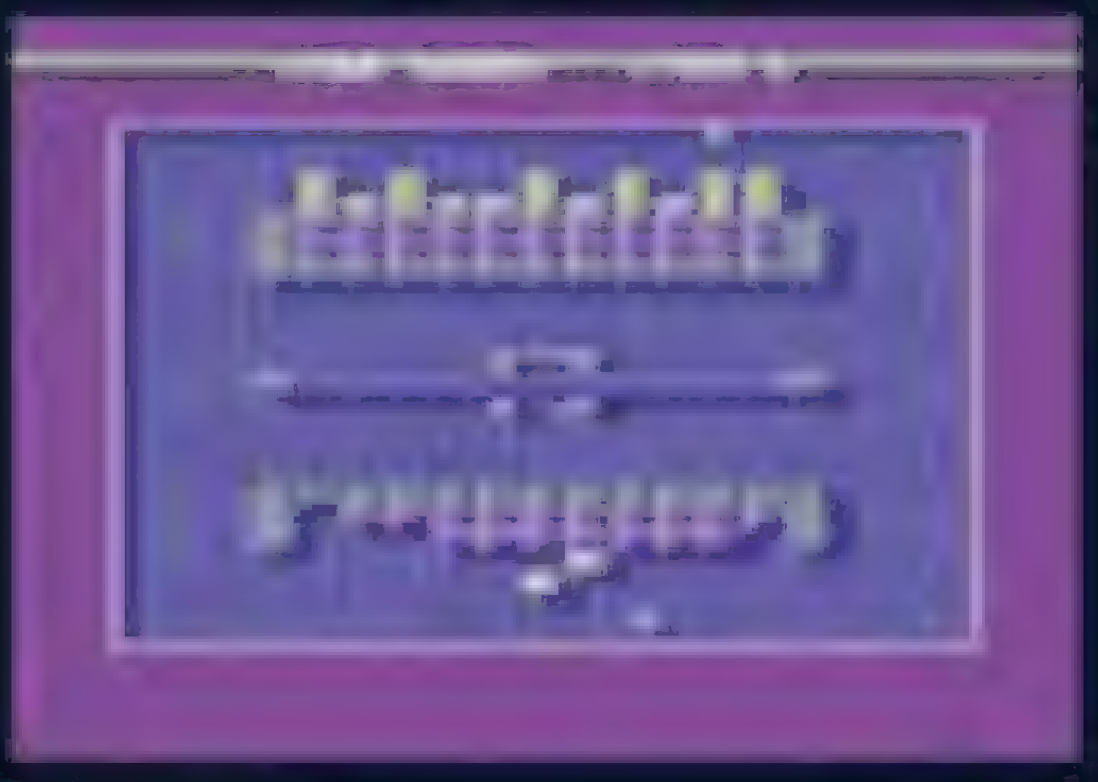
BATTY (1987)

■ A giveaway in *Your Sinclair*, before seeing a budget release as a result of its popularity, *Batty* was a slick bat-and-ball game from Elite. *Batty* looks and plays most like *Arkanoid*, featuring a similar arcade look, a bevy of useful power-ups and shmup-style enemies.



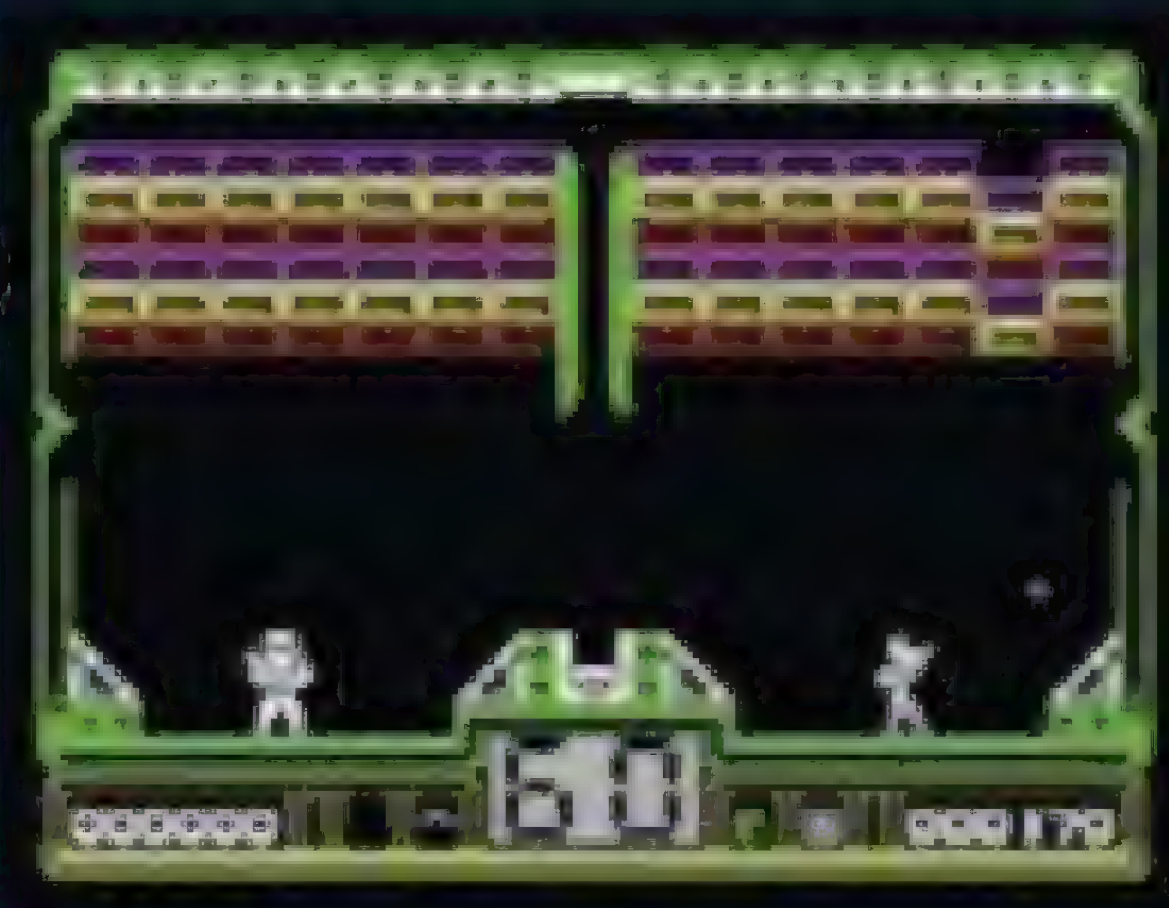
QUESTER (1987)

■ Namco's *Arkanoid*, *Quester* didn't do anything too ambitious with the bat-and-ball genre, and it is perhaps because of this that it was never released outside Japan and has faded into obscurity – that and it's bloody hard.



TRAZ (1988)

■ This interesting *Breakout* clone is loaded with variety and features. As well as elements such as multiple paddles, power-ups and enemies determined by whichever level of the 64 you are playing, it also features a level editor so you can construct your own stages.

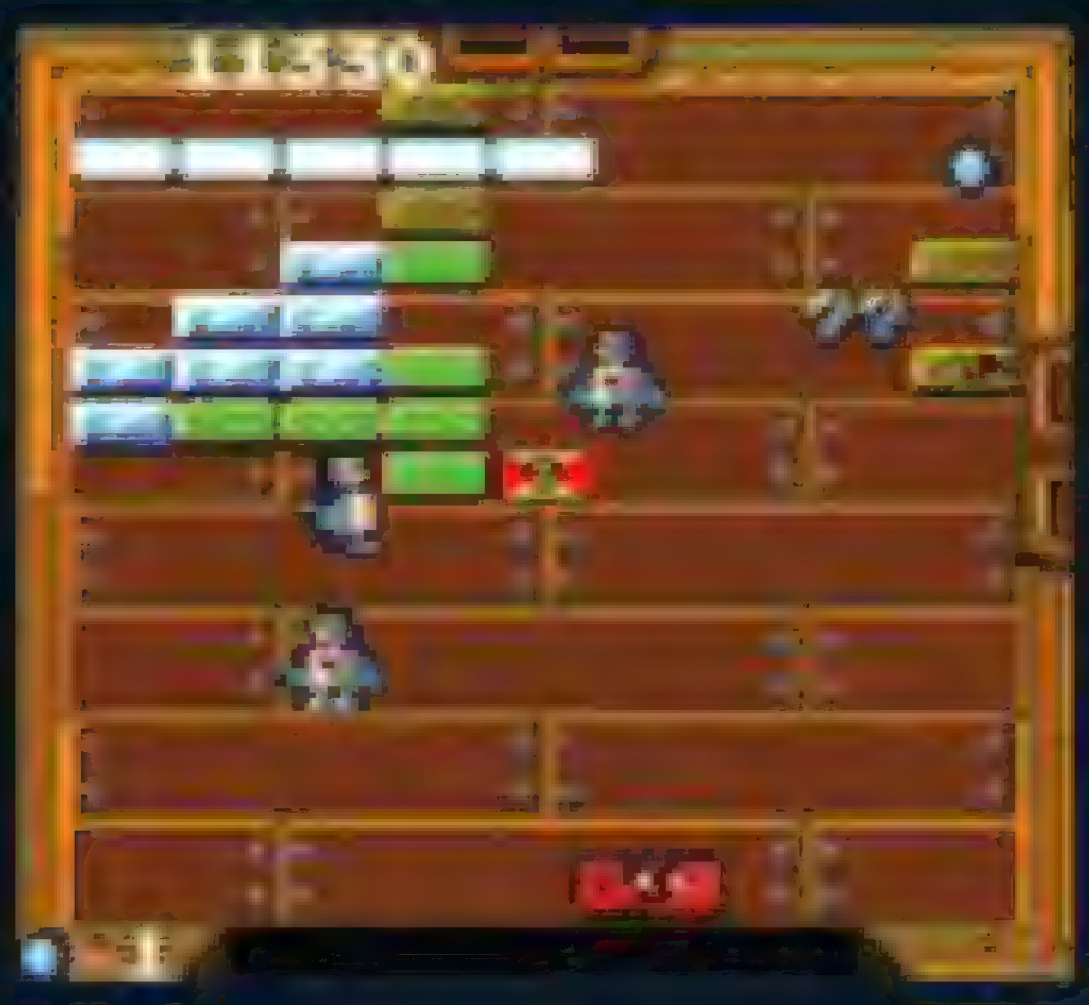


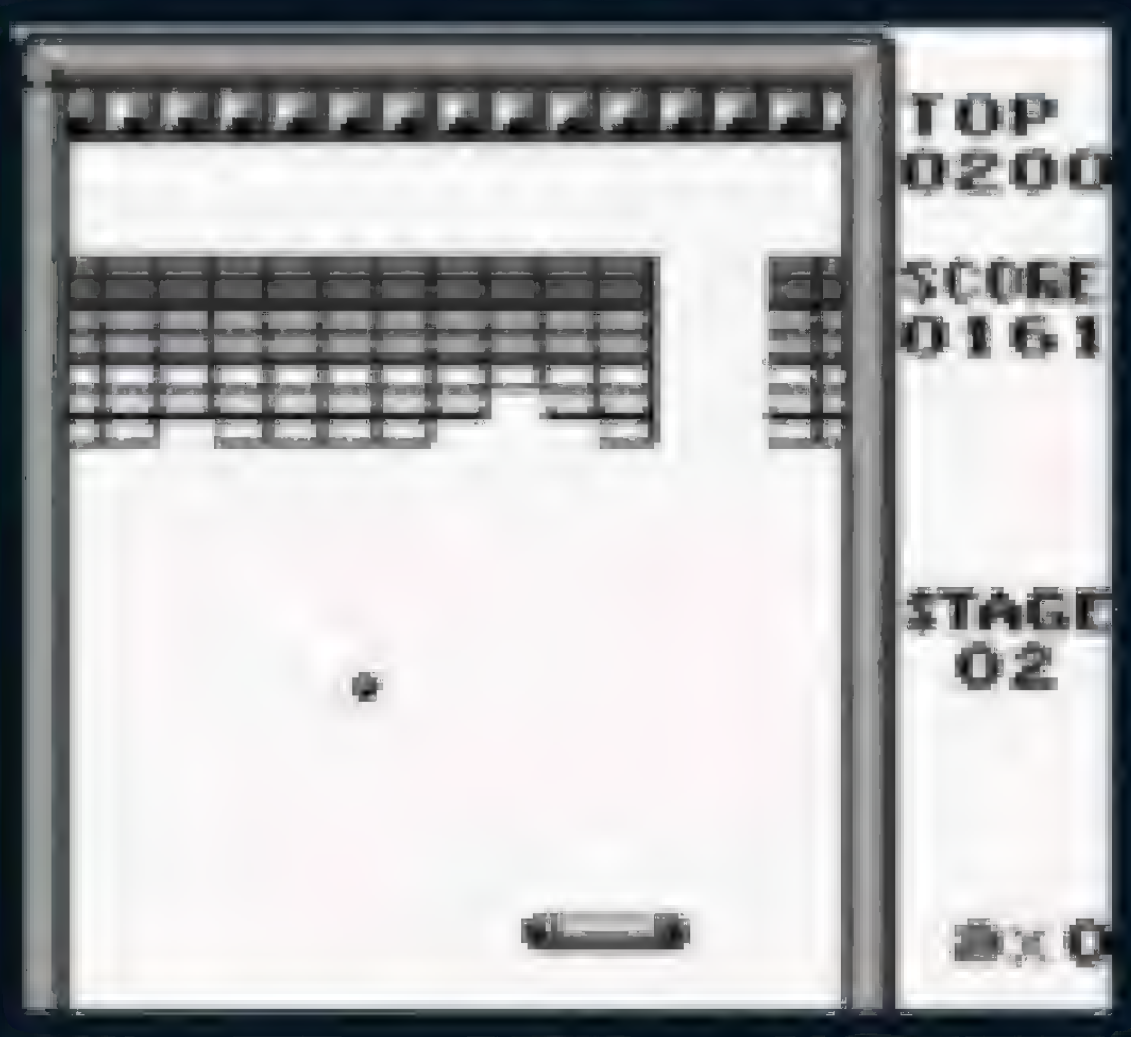
HOTSHOT (1988)

■ A competitive twist on *Breakout*, *HotShot* was heavily hyped in its day. It pits two players, or one against the computer, in a battle to smash away the most number of tiles. Though a neat idea, it was let down by fiddly controls and poor visuals.

WOODY POP (1987)

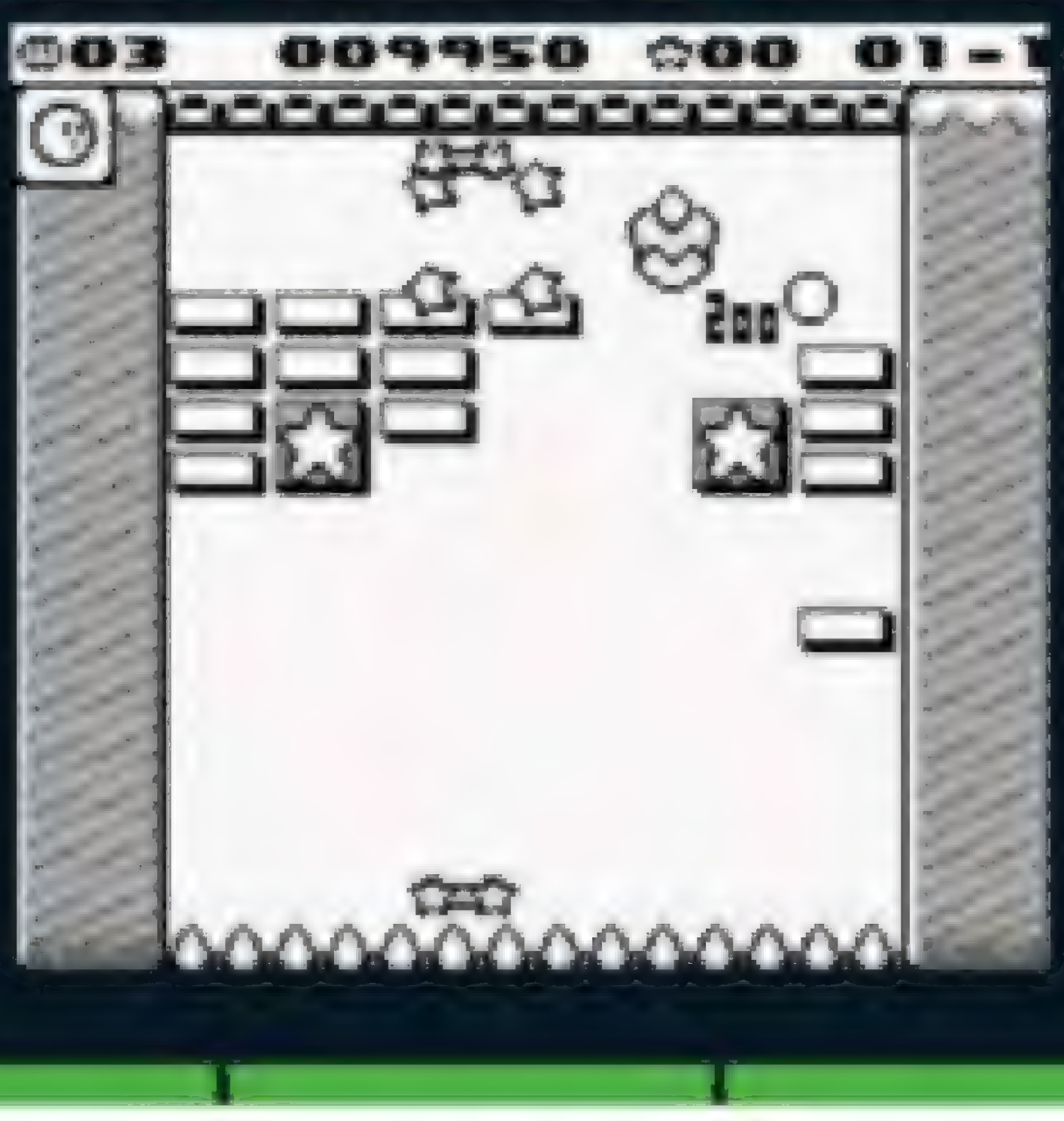
■ Released for the Master System in Japan (and later Game Gear globally) and playable only with its paddle controller, Woody Pop was Sega's answer to *Arkanoid*. Controlling a wooden paddle, players have to destroy toy-shaped tile formations while collecting helpful power-ups and hitting enemies released into the playing field.





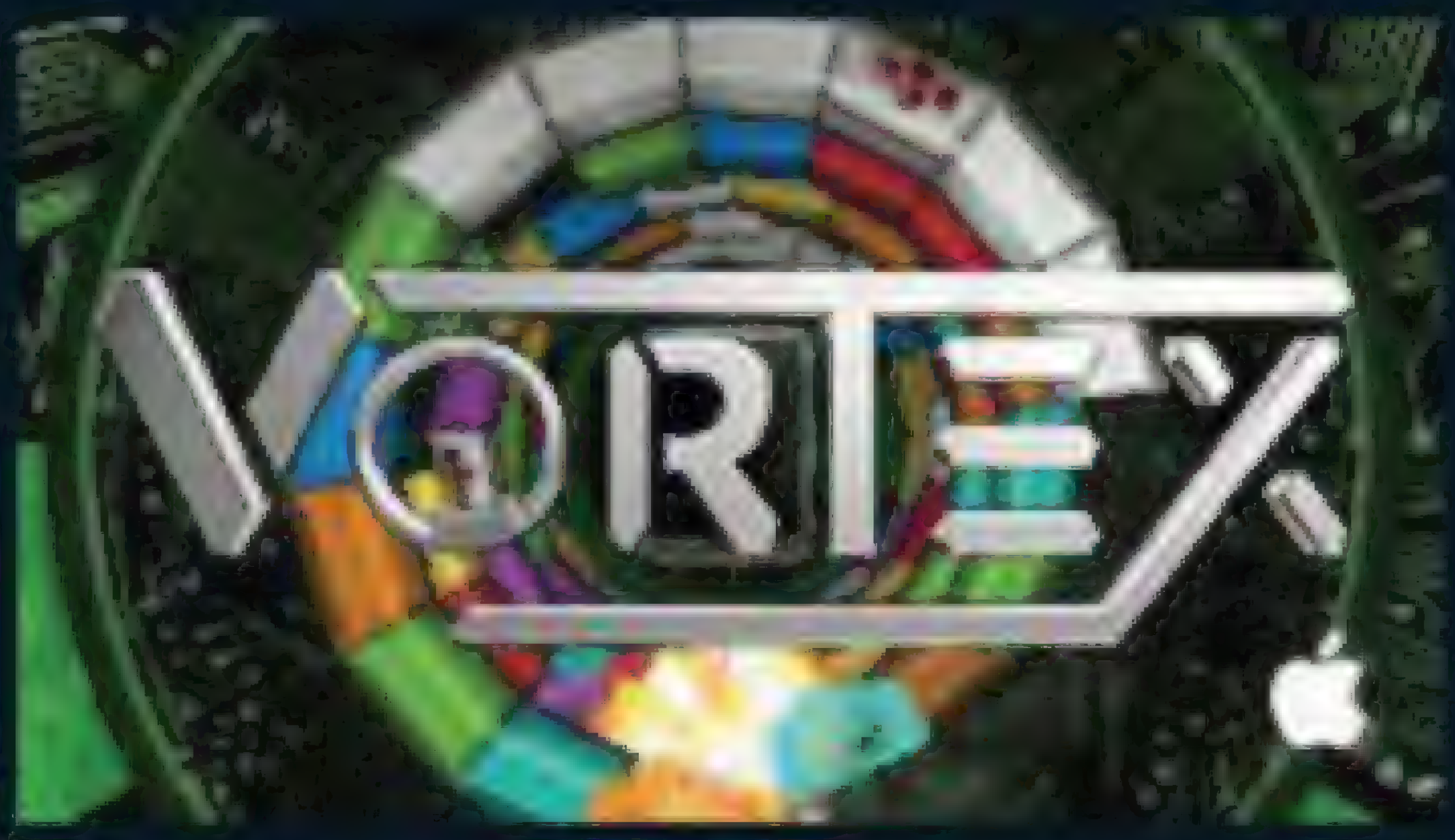
ALLEYWAY (1989)

■ There was a point where it seemed every machine needed to have its own version of *Breakout*, and *Alleyway* on Game Boy is Nintendo's offering. It's a simple clone that feels more *Breakout* than *Arkanoid*. Its most interesting feature is that it has stages with moving tile formations.



KIRBY'S BLOCK BALL (1995)

■ Working your way through themed stages grouped into islands, the ball is played by Kirby, who can acquire various powers to make clearing tiles easier. By hitting the A button at the right moment, it's possible to increase the power of your shots.

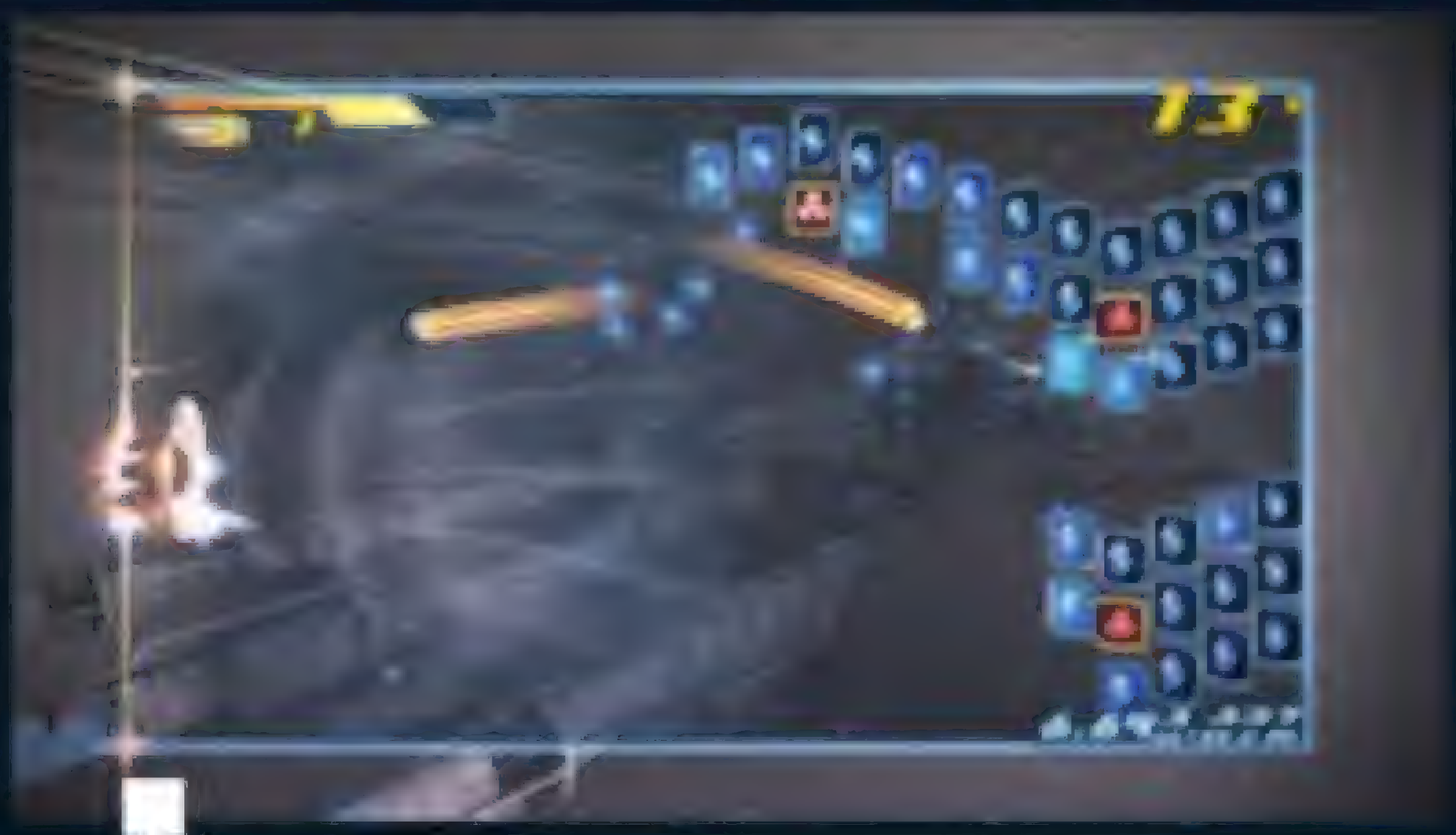


VORTEX (2006)

■ Given *Breakout*'s connection with Steve Jobs and Steve Wozniak, it's ironic that Apple would later release its own version of the game. Released for iPods, *Vortex* has an almost *Tempest* look and feel, which comes from its levels taking the form of a 3D cylinder. It's also controlled using the device's click wheel.

SHATTER (2009)

■ This superb downloadable title has plenty of tricks under its beautiful retro exterior. The key to *Shatter* is your paddle which can blow and suck nearby objects, including your ball. It's a brilliant concept that adds a layer of strategy to an otherwise excellent *Arkanoid* clone. It also has a superb soundtrack.



In the chair with...

JEFF MINTER

Known for an extensive catalogue of games that typically involve furry beasties and shooting all of the things, Jeff Minter talks about his time in the industry, from working on a ZX81 through to the latest consoles and iOS devices, and explains how ungulates found their way into his work

SPACESHIPS, IN SPACE, shooting other spaceships? That might have been fine for a while, but Jeff Minter soon dispensed with such conventions. Instead, he crafted distinctive titles starring deadly giant camels and space-faring sheep. Although inspired by arcade games of the day, Jeff's creations took things further, building on core concepts to create engaging, hardcore shoot-'em-ups for the home. He even managed to make an ostensibly quaint game about gardening engaging and hardcore. Jeff speaks to us about his career, his love for camels, and the need to do your own thing.

What was the first game that grabbed you?

Space Invaders. I'd heard it was big in Japan and when it came to a nearby funfair, I thought I'd better try it out. But there was no connection as to this being anything you might be able to do yourself. It was the same with *Pong* – the game was fascinating because it was interactive, and making anything happen on your telescreen was interesting, but there was no sense I could fabricate a game myself.

When did that sense come to you?

When I famously went into the wrong room in sixth-form college and found a guy playing with a Commodore PET. I'd never seen a Commodore PET before – I'd just seen this weird thing that looked like a tele with a typewriter underneath it. I went to see what the guy was doing. He was playing a game and I asked where it had come from. He told me he'd typed it in. That idea you could type something in and make games sounded really good fun – I thought perhaps I'd better try and find out how to do that!

Until then, what were you considering as a career?

I'd been going through college, and my main strengths were Maths, Physics and English, which is an odd combination. I always thought I'd go and do Physics at university or maybe English, because I enjoyed writing. One thing that appealed about programming was it mixed these disciplines – it was almost like mathematical creative writing.

Was that balance of creativity and technical know-how important in your early gaming experiments?

In the early days, I enjoyed getting to know a machine inside-out, but you needed a hefty dose of creativity as well, otherwise you'd end up with stuff that's technically very good but not much fun to play!

When did you realise your hobby was becoming more than that?

It happened gradually. I got a ZX80 and then a ZX81. I'd taken some simple programs to a micro fair – I don't know why. Just to show other enthusiasts, I suppose. I was at this stand where they were selling memory expansion boards, and I was looking at a 16kB one I couldn't afford, but I got chatting to the guy, mentioned I had some programs I'd written, and loaded them up and showed them to him. He asked if I wanted to develop games for him, which he'd sell, and said "By the way, do you want a 16kB memory board to develop them on?" Somebody was willing to give me hardware, for stuff I'd written... that was a revelation to me. That's when I started to think maybe this wasn't just an obscure thing I was doing for my mates. In those days the home computer scene was only just emerging, and I really thought it was some nerdy hobby no-one else would be interested in.

You started out with straight ports of arcade games. Why did you then start moving towards doing something more unique?

I always wanted to do something with a bit of identity. I did a couple of

NEM QUE A VACA TUSSA...

SELECTED TIMELINE

Deflex (VIC-20)	1981
Rat Man (VIC-20)	1982
Gridrunner (VIC-20/C64)	1982–3
Advance Of The Megacamels/ Attack Of The Mutant Camels (C64)	1983
Mutant Camels (C64)	1983
Hover Bovver (C64)	1983
Metagalactic Llamas Battle At The Edge of Time (VIC-20/C64)	1983–4
Ancipital (C64)	1984
Hellgate (VIC-20/C64)	1984
Psychedelia (VIC-20/C64)	1984
Sheep in Space (C64)	1984
Mama Llama (C64)	1985
Batalyx (C64)	1985
Iridis Alpha (C64)	1986
Return Of The Mutant Camels (C64)	1987
Voidrunner (C64)	1987
Super Gridrunner (Atari ST/Amiga)	1989–91
Llamatron: 2112 (Atari ST)	1991
Tempest 2000 (Atari Jaguar)	1994
Defender 2000 (Atari Jaguar)	1995
Gridrunner++ (Pocket PC/PC)	2002
Hover Bovver 2: Grand Theft Flymo (Pocket PC/PC)	2002
Neon (Xbox 360)	2005
Space Giraffe (Xbox 360)	2007
Gridrunner Revolution (PC)	2009
Minotaur Rescue (iOS)	2011
Minotron: 2112 (iOS)	2011
GoatUp (iOS)	2011
Gridrunner (iOS)	2012
Super Ox Wars (iOS)	2012

"Someone was willing to give me hardware for stuff I'd written... That was a revelation to me"

attempts at original games, stuff like *Rat Man*, which wasn't particularly good, but it was at least original. But I wanted to do arcade games and started out with that rubbish version of *Defender* on the VIC-20 with a massive ship. I quite fancied doing a *Centipede*-style game, but on the VIC-20 there were hundreds of versions and Atari was getting angry, placing ads in mags: "We're not going to put up with this any more!" But the more I went my own way, the more I enjoyed creating games. Although I'd often take the core of an arcade game as inspiration, I always liked turning it into my own thing.

Why did your games subsequently become filled with furry beasties?
I was into beasties before I got into computers! I was notorious for loving camels when I was in secondary school! But really you can blame them going into the games on *C&VG*. I'd played *Empire Strikes Back* on the VCS and quite enjoyed it, and I saw the *C&VG* review where they described the walkers as giant mechanical camels. I thought "I like camels!" and that you could do a game like that. It might be silly, but it would be fun. At the time, I'd just got a Commodore 64 and thought it'd be a good opportunity to put the machine's sprites to a bit of a test.

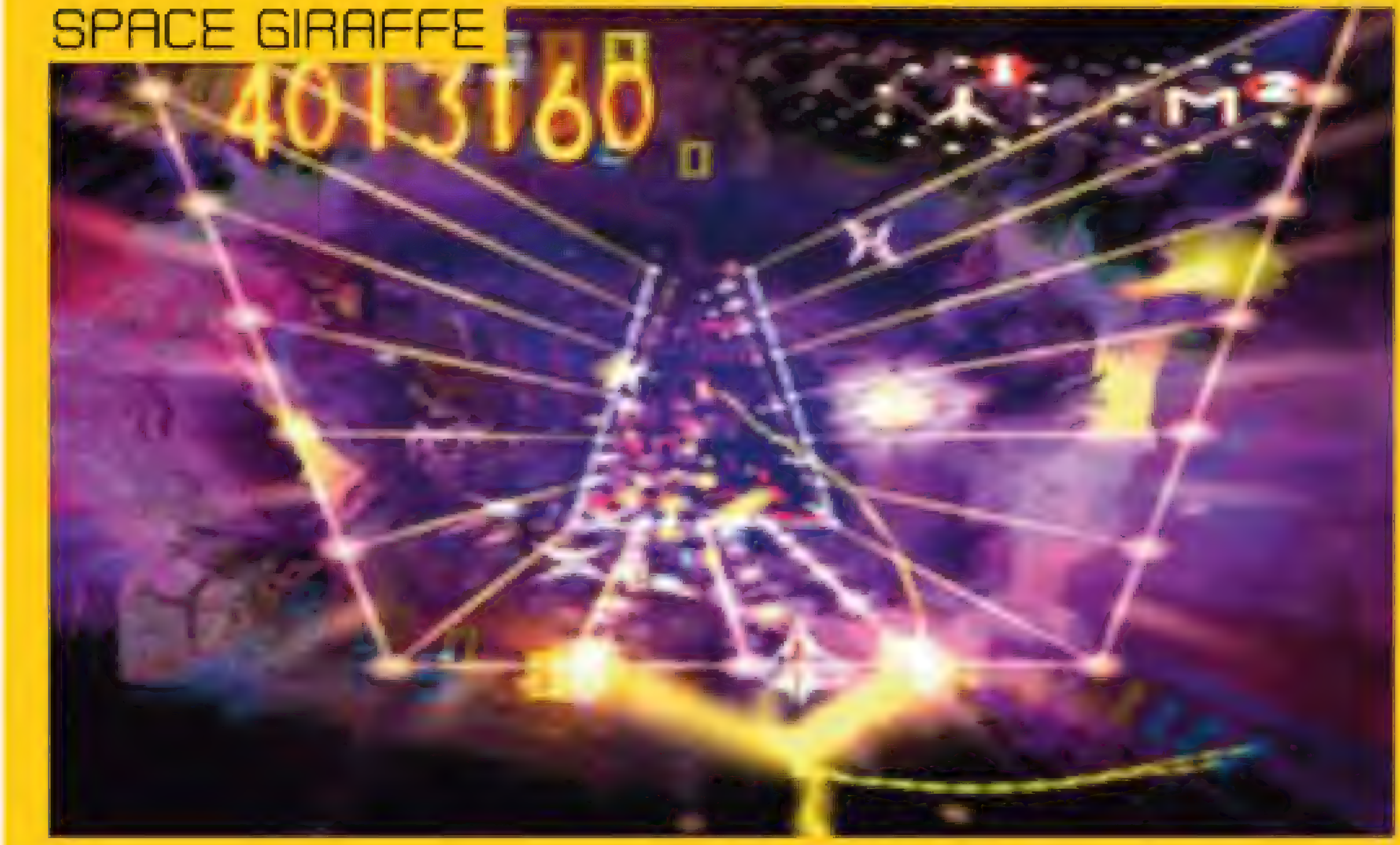
Did the beasties prove beneficial?
Yeah – people started to know me as the 'camel guy' and it seemed natural to continue my fascination with furry beasties and make them elements in more games. I was finding an identity no-one else was using and that served us very well. We became known as Llamasoft and people could recognise my games immediately just by looking at them. "There's a flying sheep – must be one of Jeff's games!"

Sound was also a big thing in your early creations, wasn't it?
Well, back in those days, you had to do everything procedurally on the sound chip and I liked that kind of thing. It was easy to make complex sound effects with simple bits of code, and I'd always admired sound effects in Williams games, which were made in a quite similar way. I tried my best to get that same metallic vibrancy out of systems that I had to hand. The VIC-20 was particularly good at this – it had a very nice sound generator you could get crunchy, metallic sound effects out of. I sometimes sample my own VIC-20 games to use in new iOS games!

*FIVE TO PLAY

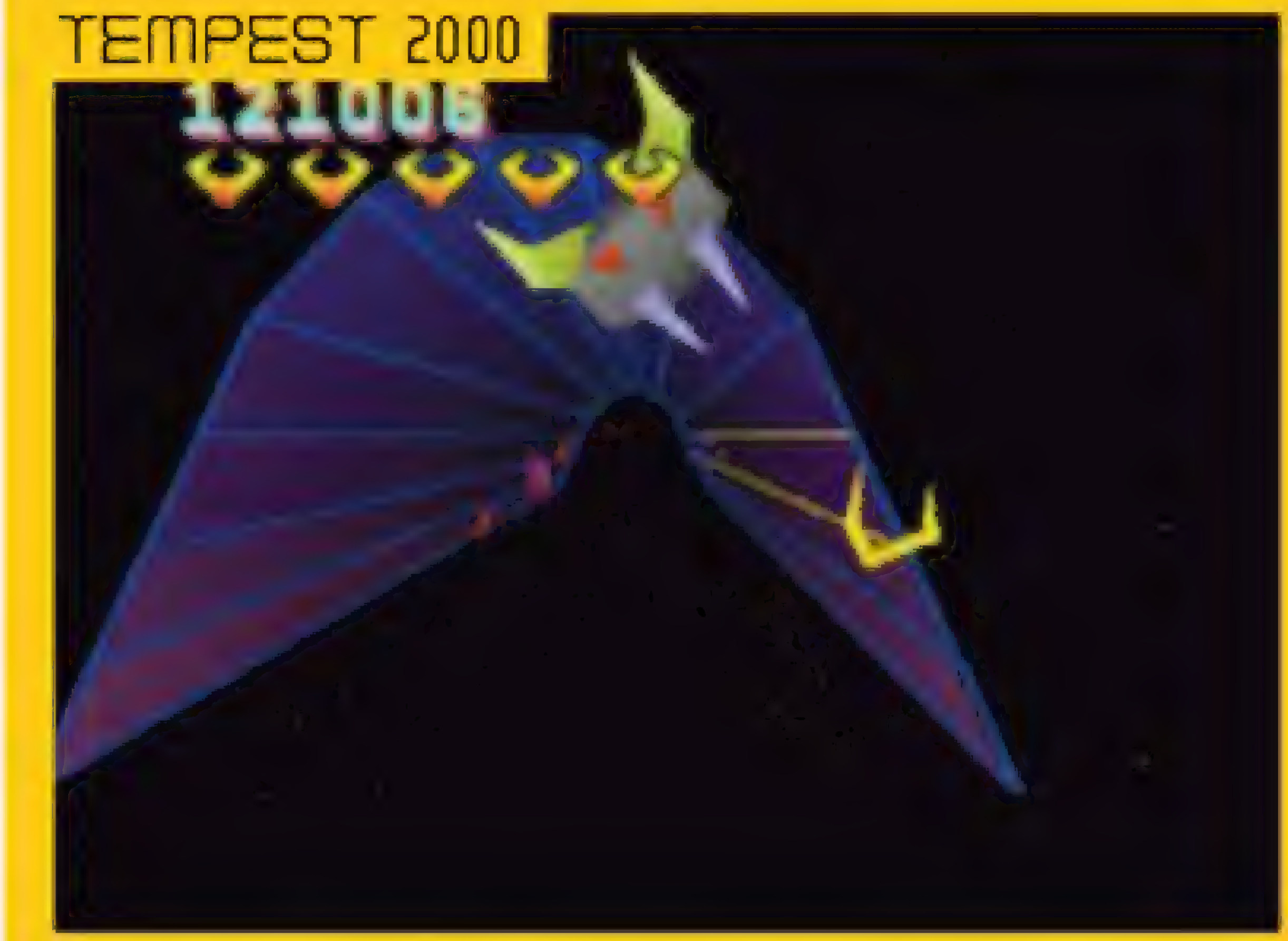
Jeff apparently has 'hundreds of "favourite" games', but all the games below are ones that he would be happy to be stranded on a desert island with...

SPACE GIRAFFE



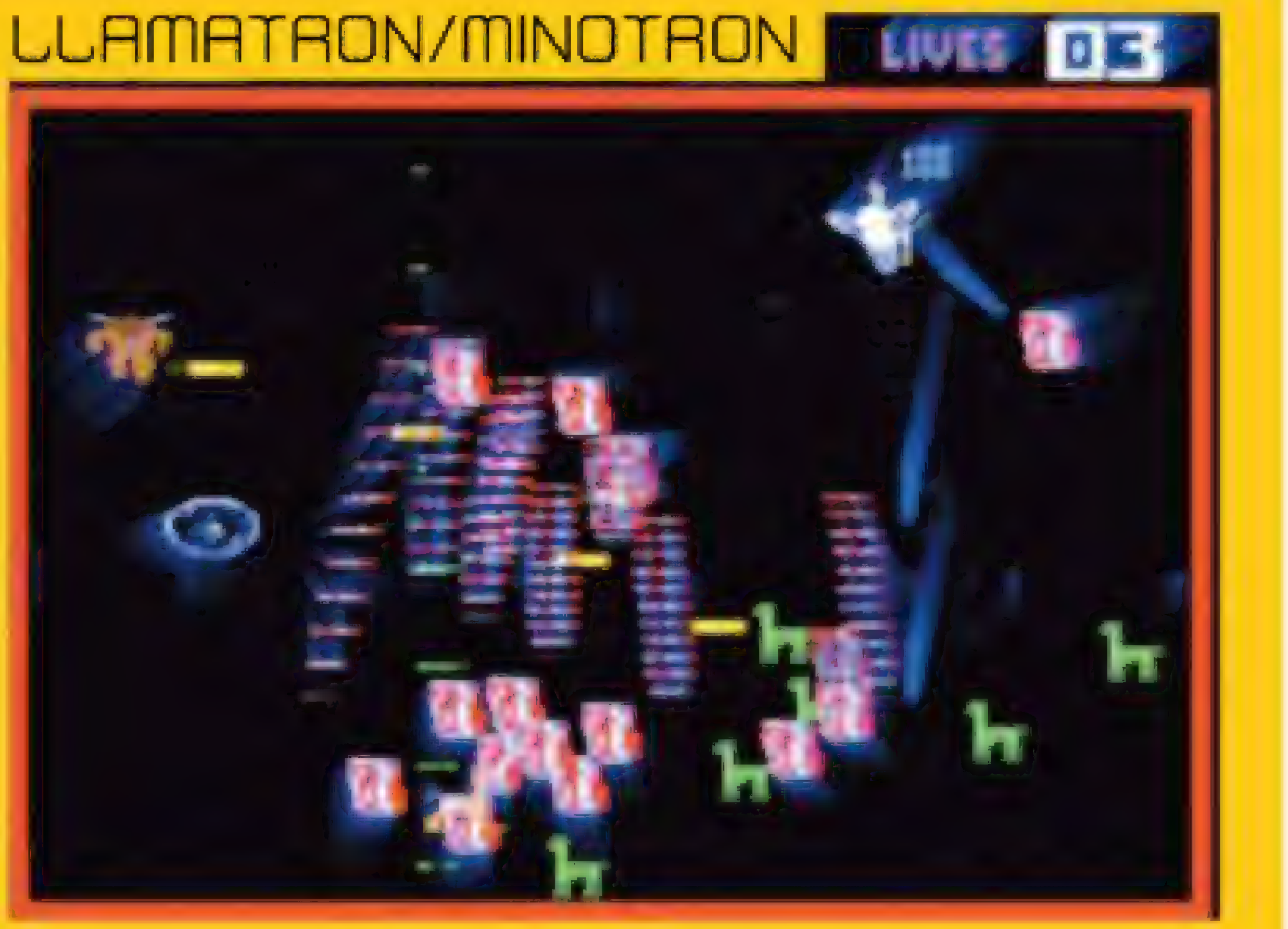
AS JEFF WRYLY notes, *Space Giraffe* was "not as universally liked as *Tempest 2000*," but he nonetheless thinks it's "possibly the best game I've ever made," finally melding his love of shooters and light-synths. The game was scorned by some for the level of on-screen visual noise, but Jeff reckons it puts you into a different state of mind: "It pushes you into an altered state, and it's a long game – a journey. It's kind of a four-hour trip in its own way, but a very safe one!" On the game's divisive nature, he reckons "some of the best work is divisive" and recalls the reviews: "*Space Giraffe* simultaneously got me the best and worst reviews of my life. At least people were taking notice of it. If people were putting that much emotion into the game, either way, at least you made them feel something!"

TEMPEST 2000



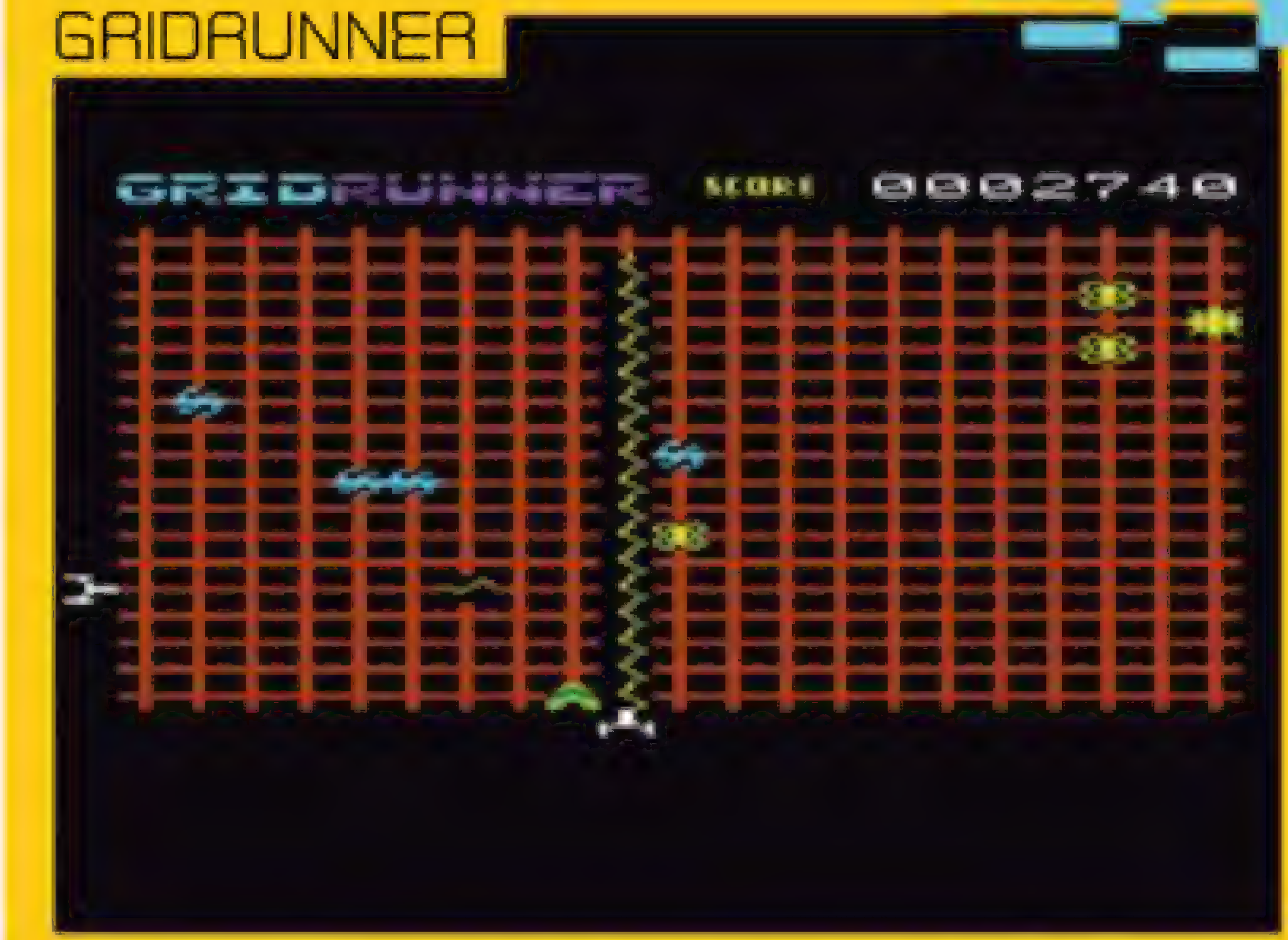
ON PLAYING *TEMPEST 2000* today, it's incredible to think this was Jeff's first game that utilised vectors and polygons. The game takes Dave Theurer's 1981 classic and somehow manages to improve it, with a number of power-ups, trippy effects, and varied enemies and web designs. "I was a bit scared at the time because it was such a classic design and there had never really been a decent home version of it, and I'd only ever worked with sprites and tile-maps up to that point. It was all new ground to me," affirms Jeff, adding, modestly: "In the end, it all came out really nicely."

LLAMATRON/MINOTRON



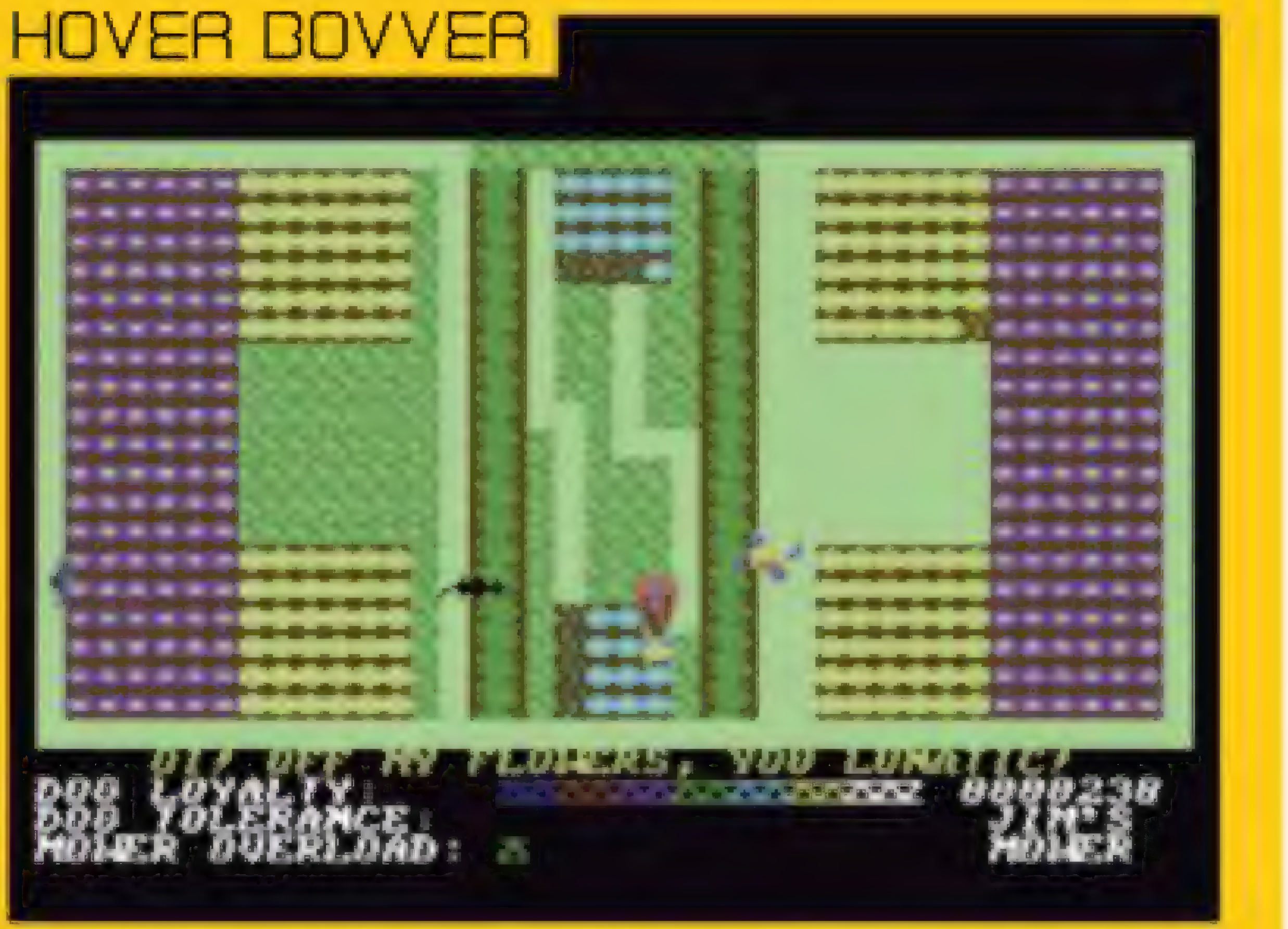
JEFF'S TWIN-STICK classic takes the essence of *Robotron* but introduces quirky British humour. "And it's nowhere near as fierce as *Robotron*, so you don't need to be a mega twin-stick hero to play it," he adds. *Minotron* on iOS utilises Jeff's continue system, enabling hardcore gamers to play all the way through but anyone to "just dip in every now and again to push your 'resume best' up a bit", and *Llamatron* on the Atari ST introduced shareware to the UK. "I thought magazine covermounts could be a good way to get distribution. The response was exceptional."

GRIDRUNNER



JEFF'S TAKE ON *Centipede* soon became something else entirely – more frenetic than the original, with a claustrophobic feel akin to *Robotron*. "It's one of my longest-lived games – over 30 years old – and there are various ways in which you can play it. But the essence of it was good right from the start, with a certain amount of juiciness in the VIC-20 version," thinks Jeff. The game's origins started with the grid and he kept adding elements, such as the zappers, to be "more sci-fi". In the end, Jeff says that although *Gridrunner* was a *Centipede* game at heart, "it definitely had its own characteristic look and feel".

HOVER BOVVER



ALTHOUGH JEFF MOSTLY makes shoot-'em-ups, he has dabbled in other genres. *Hover Bovver* is perhaps described as a gardening-oriented *Pac-Man*, with the hero frantically trying to mow lawns while pursued by an angry dog and an even angrier neighbour. (He's the guy whose mower's been pinched, see?) "*Hover Bovver* is one of my favourite games, and I've got very fond memories of it, because me and my dad designed it together," says Jeff. "It's a very silly game, and it's got a very gentle kind of British humour to it. It's also a very good example of my work that shows I can do more than just shoot-'em-ups."

> “ The computer shows are what I miss most from the old days. They were fantastic ”

As Llamasoft grew, was it hard to run a company and make games?
I wasn't really doing all the other stuff. My family were pitching in to a large degree. The day-to-day business side of it was more or less held together by my mum, and my dad helped out at shows and game testing – he loved games. All my brothers would help when we did computer shows. There was never any sense of me being left on my own to look after things. In fact, I'd say I had a pretty easy time of it because I could mostly just concentrate on knuckling down, writing the games.

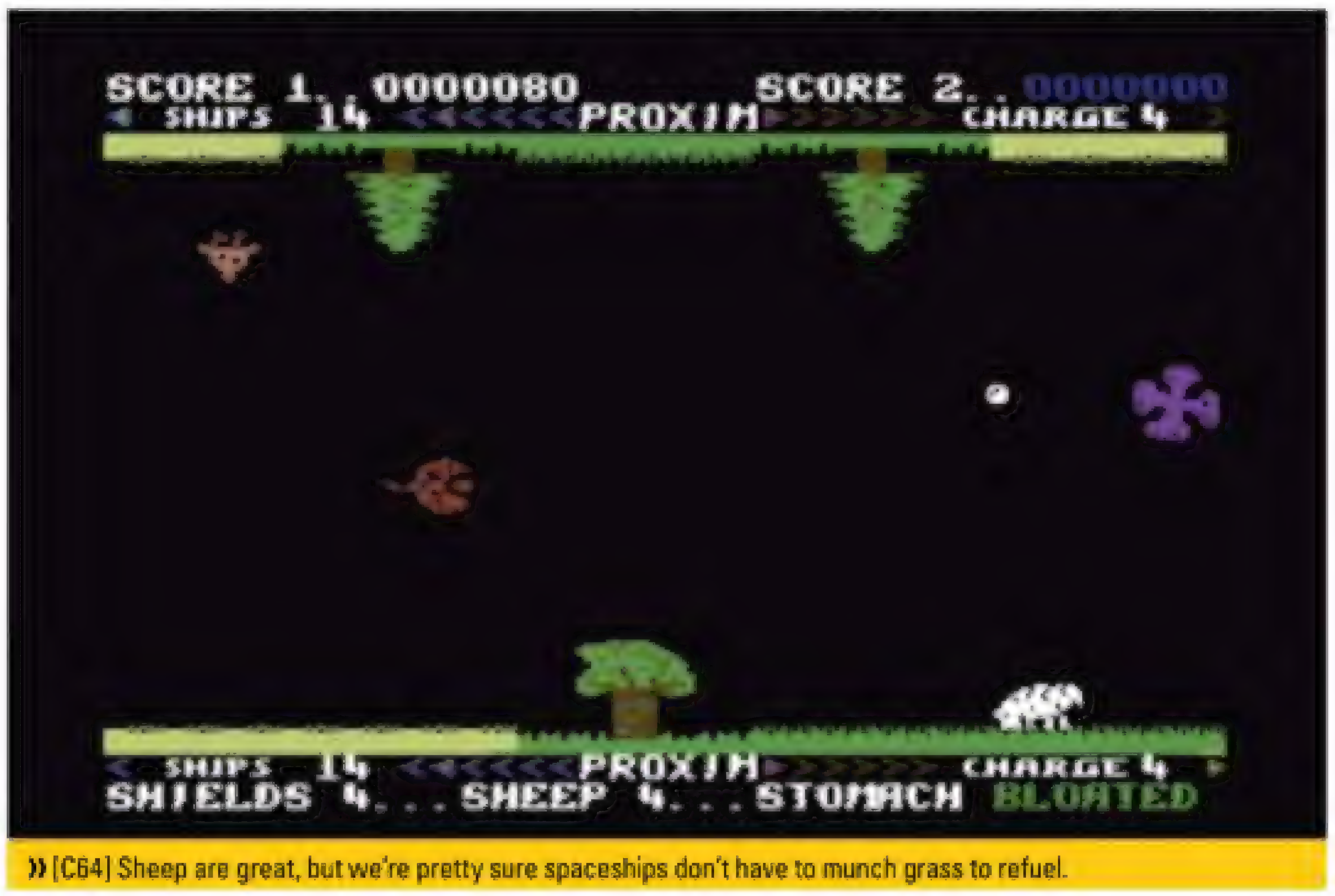
How important were the computer shows to you?
They're what I miss most from the old days. They were fantastic and became this kind of social thing. We weren't there for the hard sell – we'd set up the games, play music and let people hang out on our stand. In the evenings, we'd go to the arcades. It was a really nice point of contact between the people who played the games and me making them. It really made it feel a lot more personal.

With your games, why have you concentrated on shoot-'em-ups?

I just like the way they flow. I like the feeling when you get 'into the zone', in that place where it's like a very precise and delicate dance between you and the game.

Given that, where did the fascination with light-synths – almost the polar opposite of breakneck shooters – come from?
I was well known for being into Pink Floyd, which always had lots of visuals with it. I remember even at university having ideas about some kind of trippy graphics generator, but not really knowing what it was. Later, during my C64 days, I was out for a run and remember this algorithm popping into my head. I got home and coded it into the Commodore 64 and it just looked really good. At first, I thought this basic light-synth would be spoiled by the act of selling it, and so I gave it away as a listing to various magazines. But my parents convinced me to do a commercial version, which became *Psychedelia*. And as hardware rapidly evolved, there were opportunities to improve it – more colour, higher definition, finer controls. It became a thread throughout my entire career, and I'd always dreamed of making it work with a game, which I eventually got to do with *Space Giraffe*.

On technology evolving, how hard was the transition from 8-bit?
I remember initially being daunted by Atari ST documentation. It was all oriented towards C, but I was a pure assembly language programmer. Once I got comfortable with that, the 16-bits were in some ways liberating, because you had more power, resolution and colour, but people also started to place more emphasis on graphics. Big companies would employ graphic artists, and when you look at my games compared to theirs, the difference is fairly painfully obvious! So I carried on focusing on gameplay and got more into procedural effects, with ideas from light-synths crossing over into the games. I figured I'd at least have good gameplay and interesting effects when I couldn't have good artwork all of the time.



» [C64] Sheep are great, but we're pretty sure spaceships don't have to munch grass to refuel.

» Jeff has been keeping sheep for years and they often crop up in his games.

How did you end up at Atari?
They'd always liked me, and I was one of the earliest supporters of the ST. Commodore had been a bit shitty at the time about positioning the Amiga as a games machine and not being interested in getting games people involved with early systems, whereas Atari made it really easy. I worked on a console called the Panther for a couple of months, but they killed the system, which was disappointing. Then some Falcons were on the way to a show in Hanover and Atari asked if I wanted a look. I went in and they introduced me to the designer, who turned out to be my old mate from school, Richard Miller. At school, he didn't seem to have much interest in computers, but he'd gone into hardware engineering and ended up at Atari! So I did a little bit of work on that, but they also had this new system called the Jaguar. I went to a dev conference, and at the end they read out a list of IP that they had the rights to, asking if anyone was interested in doing a Jaguar update. The name *Tempest* came up and I went "Yeah I'll do that!" which was a bit scary because I'd never done any polygonal games or anything remotely 3D, but I thought: "I love *Tempest*. I want to have a go at this!"

It was a game that hadn't done well previously in the home...
Tempest was notoriously hard to get right – doing the transforms and drawing the lines was too slow on old machines, and the resolution was too low. The game depended on fairly clean lines and when you had pixels the size of house bricks, it didn't look good at all. I pity the poor sod who was given the task of doing *Tempest* on the Atari 2600! It looks like a pair of underpants with a prawn on it.

***Tempest 2000*, though, became a classic. How was it to work on?**
I really enjoyed *Tempest 2000*. It was a fusion of excellent parts – it wasn't just the code that was good. The music was exceptional as well, plus the original IP was a great starting point. *Tempest* is one of the classic shooters of all time. And because *Tempest* was abstract in the first

* NUMBER CRUNCHING

95: Iridis Alpha's percentage score in issue 18 of Zzap!64. "The best shoot-'em-up on the 64," enthused Julian Rignall

69: The price in pence that Jeff thinks could be the undoing of the iOS games ecosystem

68: The Metacritic score for the divisive Space Giraffe. Individual scores ranged from perfect, all the way down to Official Xbox Magazine's 2/10

30: The years between the first (VIC-20) and most recent version of Gridrunner (iOS)

16: The size of the ZX81 RAM pack in kilobytes that Jeff was given at a trade show

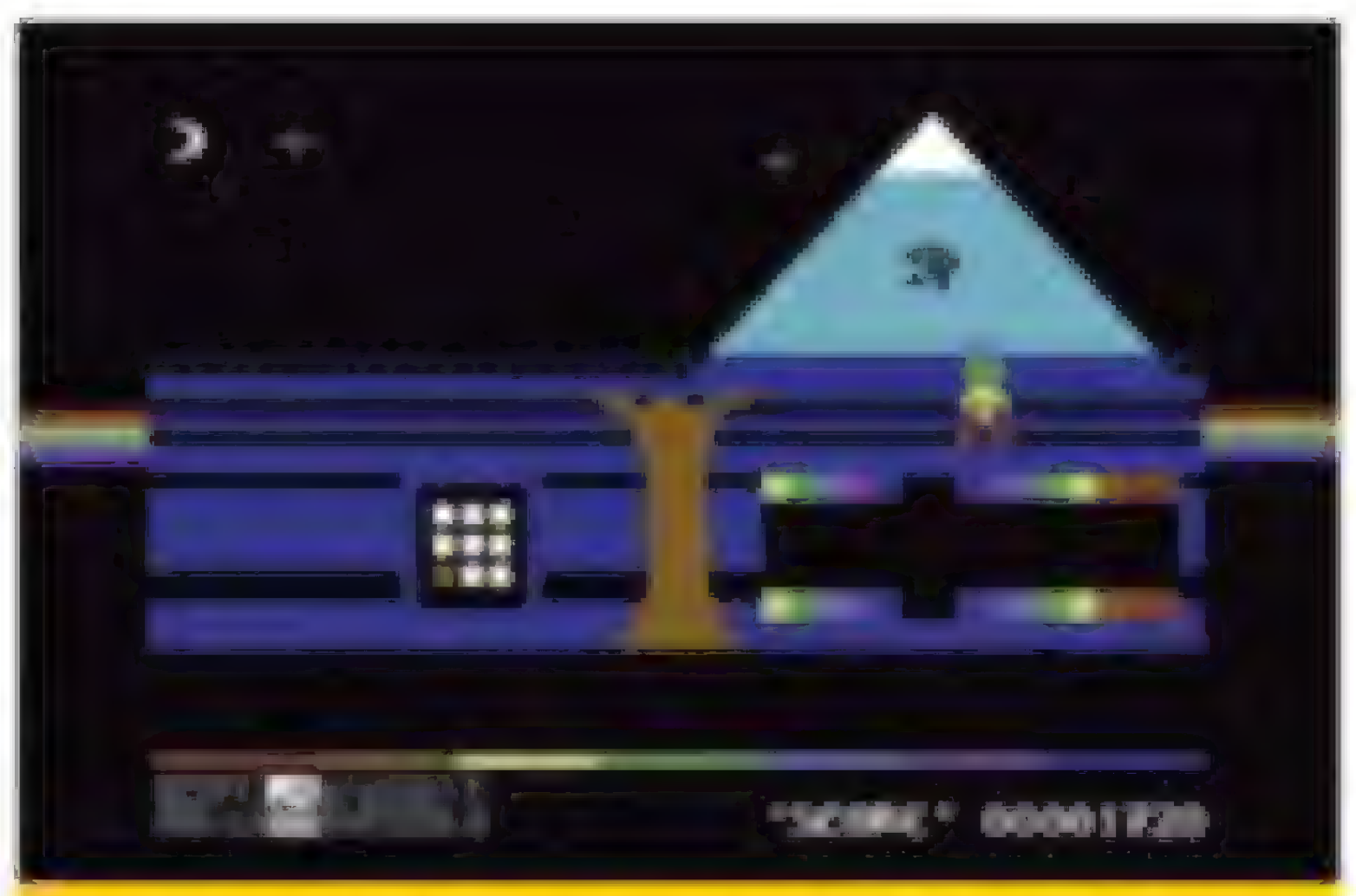
8: The number of Llamasoft games on C64 compilation Yak's Progress, priced at the time at just £9.50

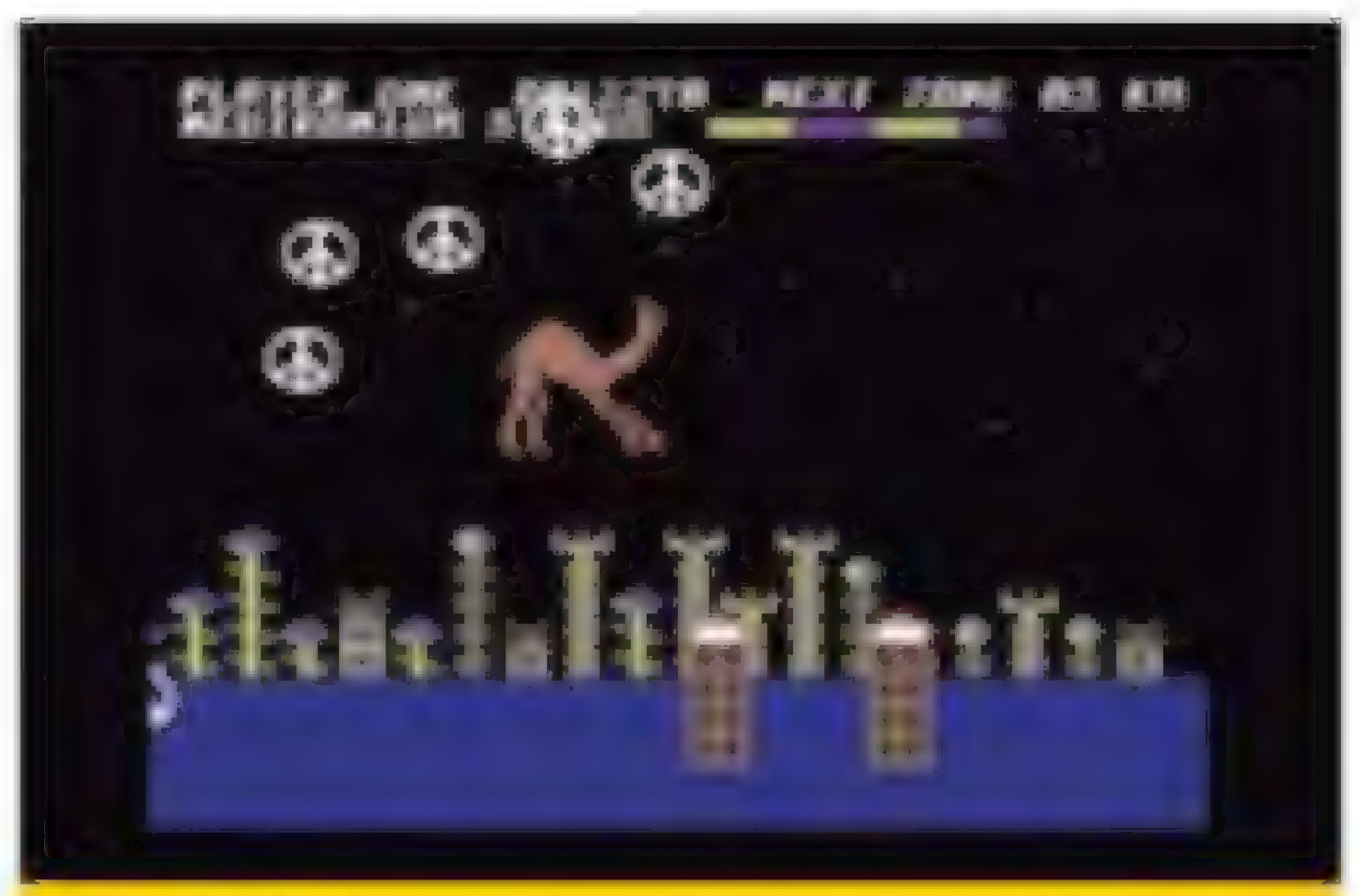
6: Subgames in C64 classic Batalyx, which we really want Jeff to remake for iOS

1: The amount in kilobytes of 6502 assembler code that housed the original version of the trippy Psychedelia light-synth

place, it gave me free range to start playing with some effects on the Jaguar, such as shattering stuff into pixels, feedback and stuff like that. I could go crazy with those things. It all fitted together really well – everyone working on the game was really into it, and I had an excellent producer, John Skrutch, who knew just how to apply the right amount of pressure to get me to go in the right direction.

What do you think about the rest of your Jaguar output?
Well, there was the VLM, which I really enjoyed doing. It was the first active version of the visualizer I'd done, because everything else had been driven by the user. This time, it was in part driven by the music. Leonard Tramiel was really into it – I'd come into work and he'd be in my cubicle, playing Beethoven on the VLM! And then there was *Defender 2000*… I wasn't as fond of that as I was of *Tempest 2000*. At the time, I was an employee of Atari and I think they pushed me a little bit hard in certain directions I didn't really want to go in. At first, it was going to be a cartridge game, and then they decided they wanted to put it on CD-ROM. Because of that, they wanted a lot of hand-drawn artwork, big sprites and parallax layers. What I'd wanted to do was more like the Defender Plus mode, where it still retains the small graphics from the original game, but with plasma effects in the background. Instead, you got a game where the ship was too big and everything else was too big. It was still nice enough, but I think it could have been better if I'd been a bit less pushed [laughs].


» [C64] Activation of *Iridis Base* in C64 classic Batalyx, which we'd dearly love to see on iOS.


» [C64] HES passed on *ROTMC*, presumably because the quirky British humour didn't translate.

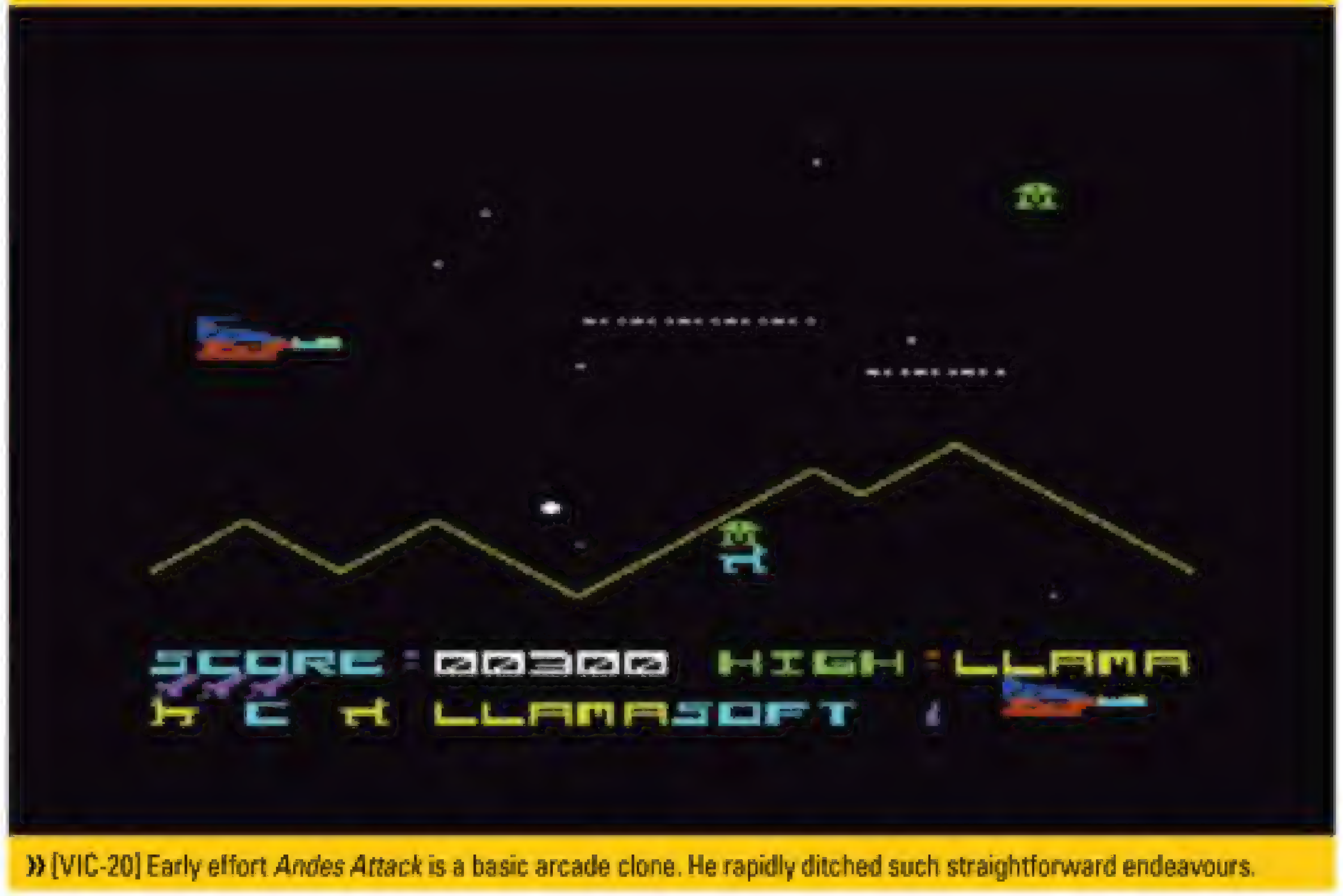
After a bit of work on the Nuon, you returned to the PC for a bit. Was this an attempt to work on a more robust platform?
My PC games at that time weren't actually made for the PC specifically – they were made for the Pocket PC. I quite fancied doing something on a handheld device. Even though the market wasn't very big, there was a simulator you could run on the PC, and it was fast enough that you could release games that way. So I'd write the one game and get the Pocket PC version and a PC one running in a window, for free. Really, though, I wanted to do some fairly short projects. Having been working on games that took a long time, it was nice doing ones that were over in a month or two.

Yet you then dived into *Unity* for the GameCube! What was the story there?
It was an ambitious experimental project that was a nice idea, but it was just taking too long. It needed a bigger team than just me, to get everything done in a timely manner. By the time I'd been doing *Unity* for a year and a half, we realised that the GameCube would probably have been obsolete by the time I was done.

What did the game itself entail?
One of the underlying ideas was you'd start out with a simple ship. As you played, the way you'd play would cause your ship to evolve. There was a grid of mutations you could pick from between levels. There were going to be certain types of gameplay that connected levels. One of them was like a 3Dish, side-on, side-scrolling thing. Polygonal 3D. It was all very translucent. There were other sections a bit like *Space Giraffe*. It was nice-looking, but I wanted to do so much with procedural, generative stuff, and it needed more than just me doing it. I certainly count *Unity* as a good learning experience, though, and I don't regret working on it, even though the game didn't come out.

How did you end up working with Microsoft after GameCube's *Unity* was cancelled?
It turned out J Allard liked a lot of my work, the light-synth stuff in particular. He'd tried to contact me about doing something for the original Xbox boot-up sequence, but for some reason I'd missed the mail, so I never knew about it. So this idea was passed on to him about me doing light-synth stuff for the Xbox 360. Microsoft got me a dev kit and I did a demo and went out there and showed it at the Xbox 360 team's Christmas party. This was well before the Xbox 360 was released, so it was all secret stuff. They liked the demo, and we got a contract from there, for what became *Neon*. It would have been nice if I'd have got 10p per system sold [laughs] but I was told it was very much work-for-hire! There were also supposed to be more stages for it and a downloadable editor, and I was going to do some work with the Xbox 360 camera. We did create an extension to *Neon*, which uses a videocamera, and it's

> "The GameCube would probably have been obsolete by the time Unity was done"



» [VIC-20] Early effort *Andes Attack* is a basic arcade clone. He rapidly ditched such straightforward endeavours.

utterly fantastic, but Microsoft never took it and ended up bunging their own half-arsed stuff on top of *Neon* instead. I was kind of miffed about that, because what we did was way better.

Presumably, though, *Neon* opened the door to *Space Giraffe*?
Yeah – there was a guy involved with Xbox Live Arcade, and he emailed and said he'd wanted to work with me for years. I thought that all sounded really cool. He showed me XBLA and we played *Robotron*, which was one of the games on there at the time. I got a dev kit, and went off and did *Space Giraffe*. It took a year and a half. It was a long project, but I think it's one of the best things I've ever done.

It's also one of the most divisive, and so why do you consider it a core Minter experience?
It's the way in which it brings together the game and the light-synth stuff. It uses all the light-synth effects as a mode of introducing difficulty to the game. Some people really objected to me deliberately creating this kind of visual noise and that you needed to look through that to get to the visual cues, but it's almost a game about learning to let go and "Use the force, Luke!"

What initially appealed about the iOS platform?

I was attracted to the idea of doing something with a shorter development cycle. If you do something for a month and people don't like it, it's less risky than if you've spent a year and a half on something people don't like.

How was it dealing with a system that lacked the traditional controls your games had relied on?
That was what initially put me off of iOS development – I'd not played a single game I enjoyed the feel of, and was wondering if it was actually possible to do good controls on an iOS device. I started to experiment and realised it wasn't impossible – it just takes a bit of care. You've got to consider the device, how best to use it, and get people past this idea of needing things on the screen. You don't need to see controls – you can tell what you're doing with each hand, and so you don't need anything visually nor anything in a fixed place. You just need to understand game design and what the hands and controls are doing, and you should put as much of that into the game itself as you can – make the game understand those things without forcing the player to have to stick their fingers in a particular place.

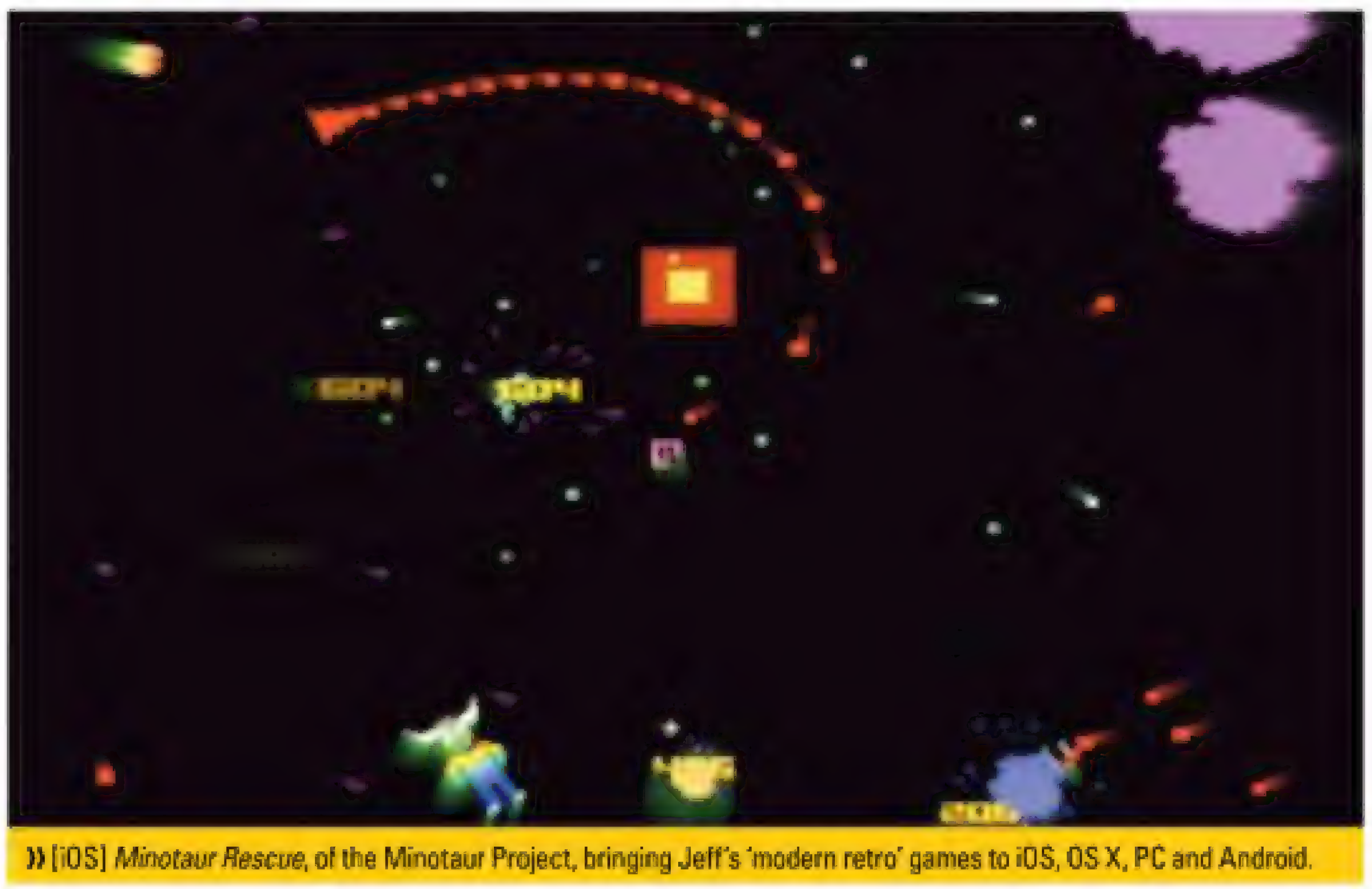
How do you go about working on controls for your iOS games?
When I get the idea for a game, I first get the player character in there and hook up controls. As the rest of the game is built up, I'm constantly using, feeling and refining the controls. The worst thing you can do is the opposite – slap controls on right at the end.

Do you feel that there is a downside to developing a game for iOS?
It's hard to make a living. There has to be some kind of move away from the 69p price-point. 69p is a terrible thing that in the long run's going to do more harm than good. I would like to see an establishment of a price-point a bit higher than that, around the price of a pint. The trouble with 69p is the only people who do well with it are already well known or those who get lucky and their game goes viral. In the 69p zone, you're effectively playing the lottery.

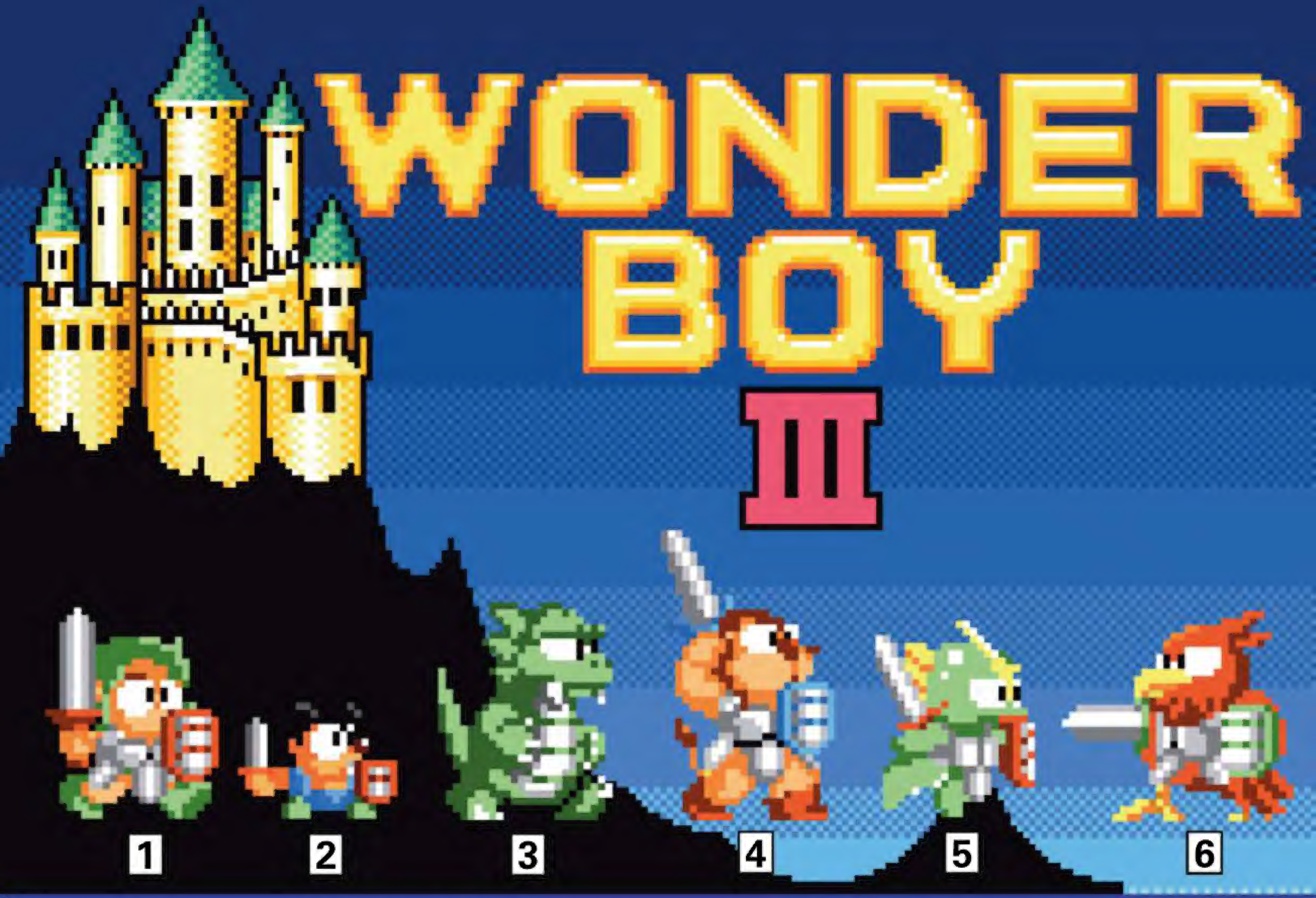
If you struck it rich and won the lottery, how do you think that would affect your games? Do you even think it would?
This is another of my pet bug-bears: when people are successful and they then spend the next who-knows-how-many-years remaking the same one game. What kind of lesson is that? Great success leads to stagnation! If I had lots of money and didn't have to care about it, I'd let my imagination run crazy and try all kinds of mad experimental stuff. That's the point isn't it, rather than developing a cash cow and milking it until it drops dead? I'd do more work on the light-synth, for sure. I'd do all kinds of games with interesting mechanics. I'd hope they'd all be good, but I'd feel less constrained perhaps than I do at the moment.

So your advice for anyone interested in getting into games is very simply to be more creative, would you say?
Make the things you want to exist. That's always been my prime motivation in games. Yes, I've wanted to make a living out of it, but really I've wanted to make the games that I want to play. I think as long as you're doing that, you'll be happy and you'll make good stuff.

» Jeff's retro machine room. It's an awesome cavern of classics that would put many collections to shame.


» [iOS] *Minotaur Rescue*, of the Minotaur Project, bringing Jeff's 'modern retro' games to iOS, OS X, PC and Android.

THE CLASSIC GAME



Sega's *Wonder Boy* series has gone through numerous changes since it was first released in 1986. Its finest moment is arguably the brilliantly received *Wonder Boy III: The Dragon's Trap*, which took the exploration and RPG elements that had first appeared in *Wonder Boy In Monster Land*, and married them to an excellent Metroidvania template. We revisit Westone's hit Master System game to find out if it's still the superb arcade adventure it was when we first played it back in 1989.

1 ***Hu-Man***
This is Wonderboy's original form, as he appears at the beginning of the game. Unfortunately, it's not long before he's changed into a green fire-breathing dragon.

2 ***Mouseman***
Mouseman is small, which makes it easy for him to avoid enemies. He also has the rather handy ability to cling to chequered walls, allowing him to reach areas other characters can't.

3 ***Lizardman***
This is the form you first turn into after being struck by the Mecha Dragon's trap. Fortunately you're far from defenceless, as you have the ability to breathe fire. Very handy.

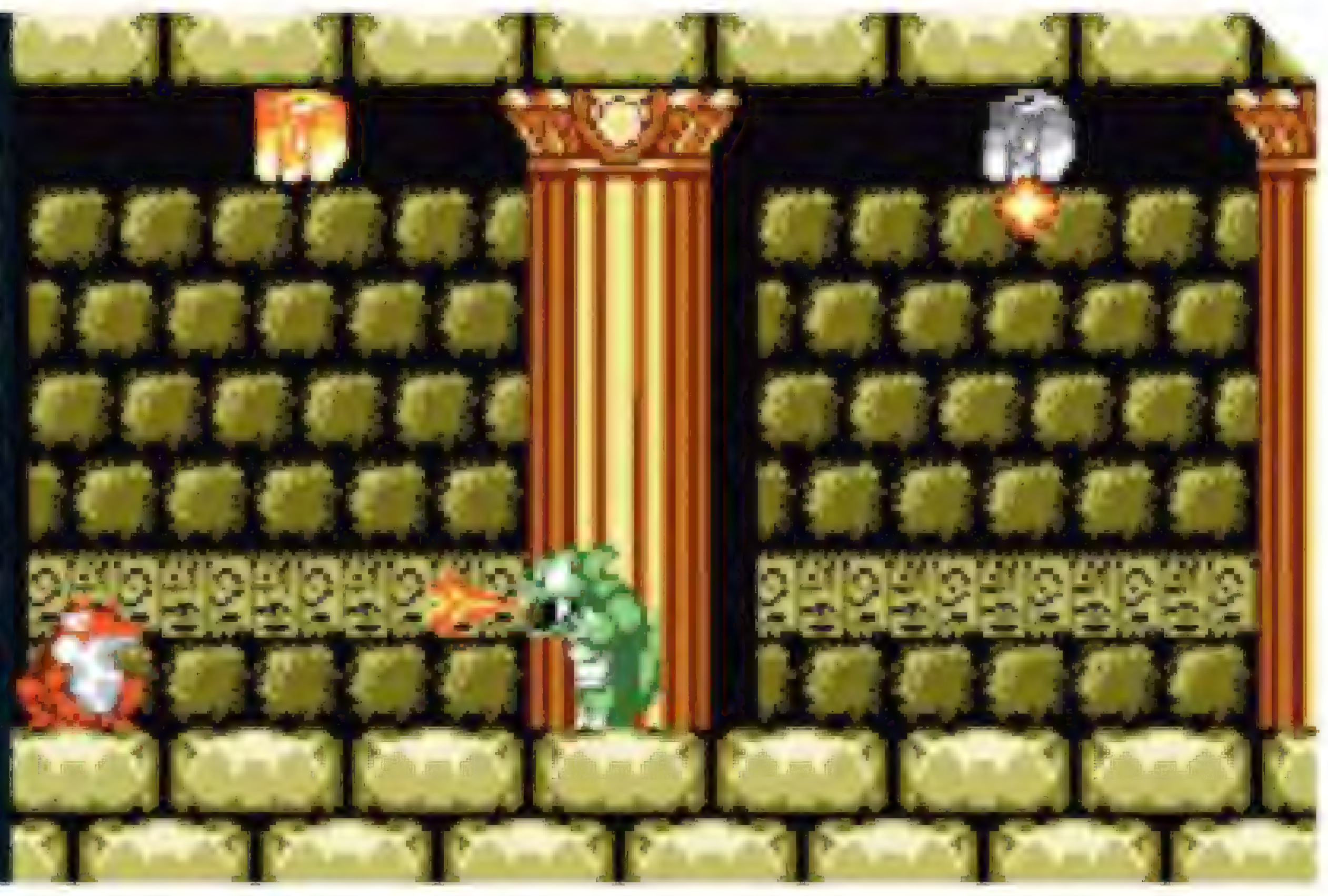
4 ***Lionman***
Not to be confused with *Thundercats*' Lion-O, this meaty-looking fella boasts an overhead swing that allows him to hit anything above his head. Very useful when seeking out secrets.

5 ***Piranhaman***
The ability to swim is Piranhaman's biggest asset. This makes it easy to negotiate the large areas of water found throughout the game world, and avoid the many aquatic enemies.

6 ***Hawkman***
Hawkman is extremely powerful, as he has the power of flight. This allows him to avoid all sorts of danger, but makes him especially susceptible to the game's few high-flying enemies.

MEMORABLE MOMENTS

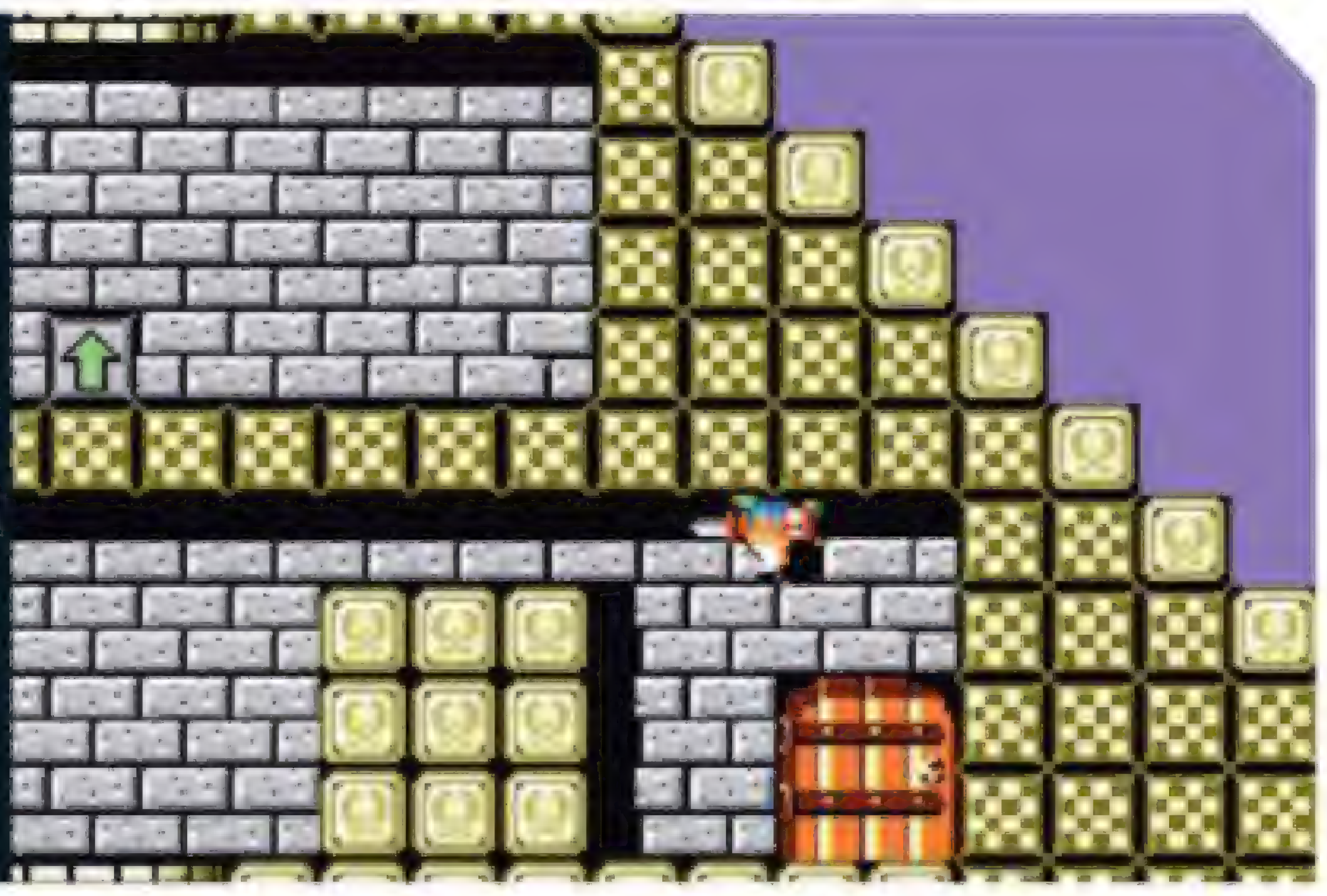
WHY IS IT A CLASSIC?



Balanced Perfection

There's an epic scope to *Wonder Boy*'s third Master System adventure that few other games on the system were ever able to match. While it borrowed heavily from the gameplay mechanics first introduced in Westone's arcade game *Wonder Boy In Monster Land*, the developer continued to polish both the gameplay elements and the engine itself, until its game evolved into one of the Master System's true classics. Brilliantly paced and with a large number of hidden secrets to uncover, it remains a wonderful arcade platformer and is easily one of the best games in the franchise.

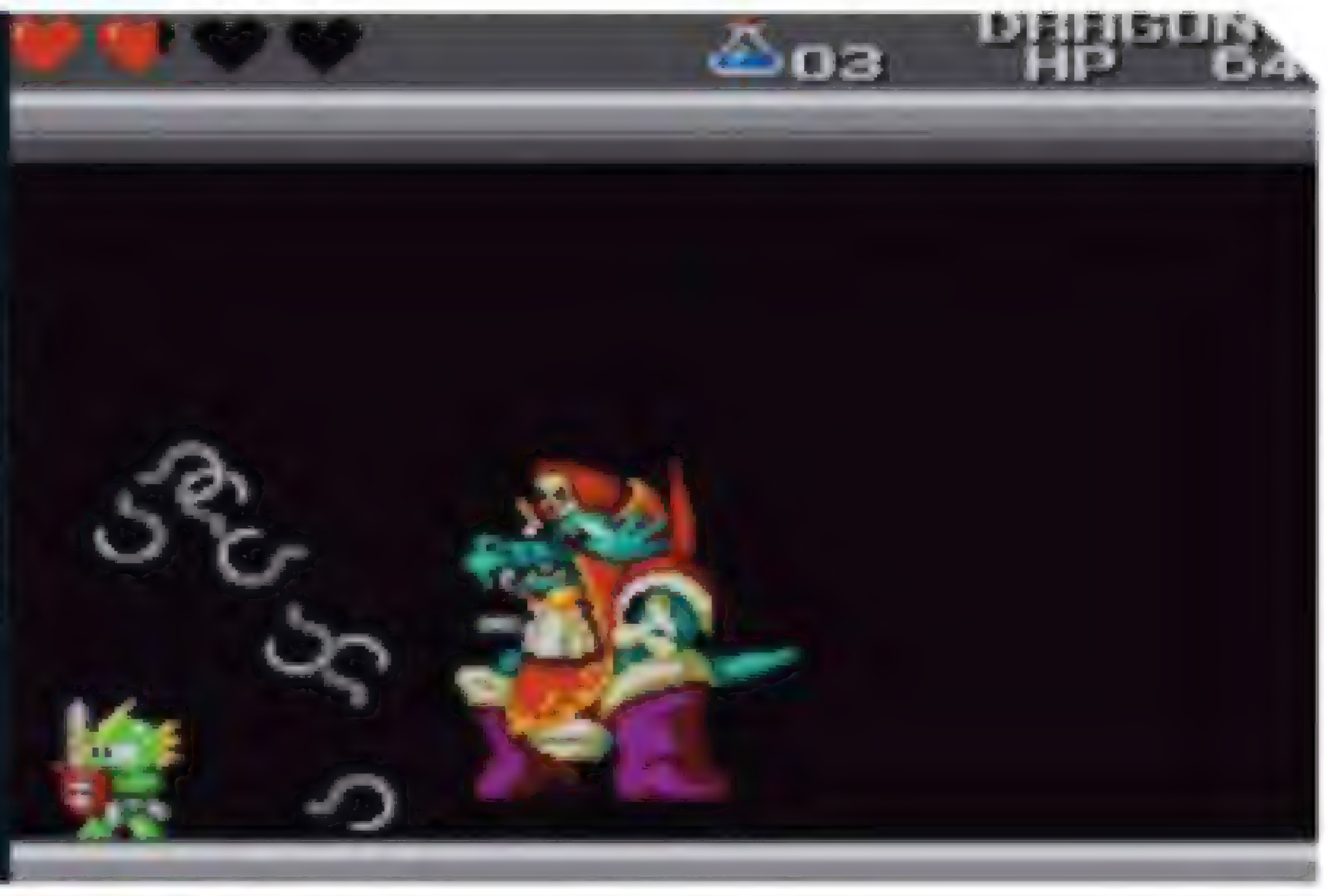
BEST CHARACTER



Enter Mighty Mouse

It's hard to choose a single character in *The Dragon's Trap*, because they're all so useful at various stages of the game. If we did have to pick just one though, we would most likely plump for Mouseman. In addition to looking cute, he's also versatile, with his ability to cling to certain types of walls, allowing him to get into all sorts of little nooks and crannies. His small size also makes it a lot easier for him to avoid certain enemy attacks, while also being surprisingly nippy, allowing him to quickly run through the more emptier sections of the large game world.

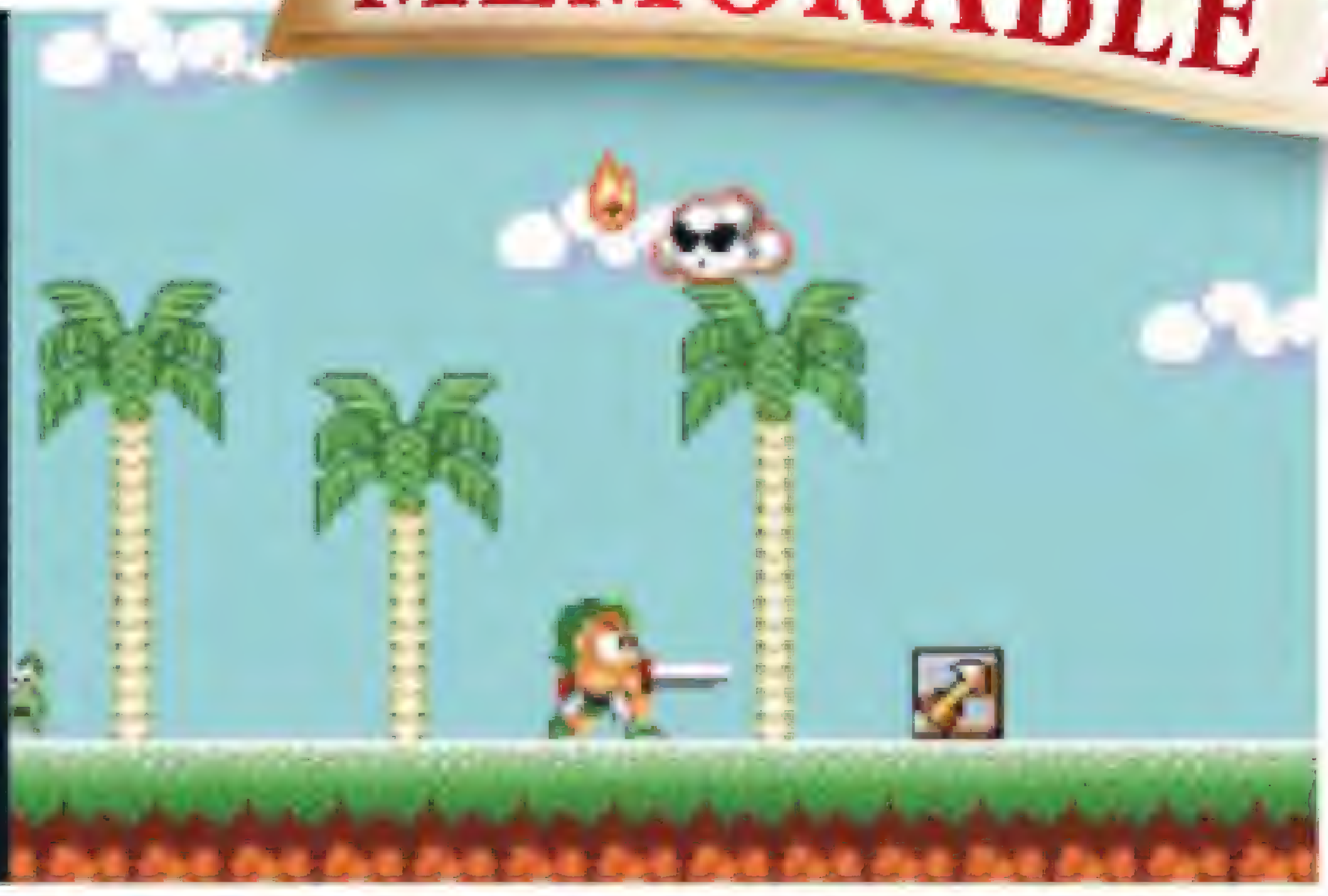
BEST BOSS



Pirates Rule

Everybody knows that pirates are amazing. With this important statement declared it should become obvious that our favourite boss in *The Dragon's Trap* is the giant pirate dragon encountered when you play as Piranhaman. Hiding in a ship with the same size dimension issues as *Doctor Who*'s Tardis, you have to traverse some incredibly challenging corridors before you encounter the mighty adversary in his underwater lair. He's an easy boss to beat, requiring you to do little more than block his one attack which consists of throwing a bunch of hooks at you, but you can't deny he's one snappy dresser.

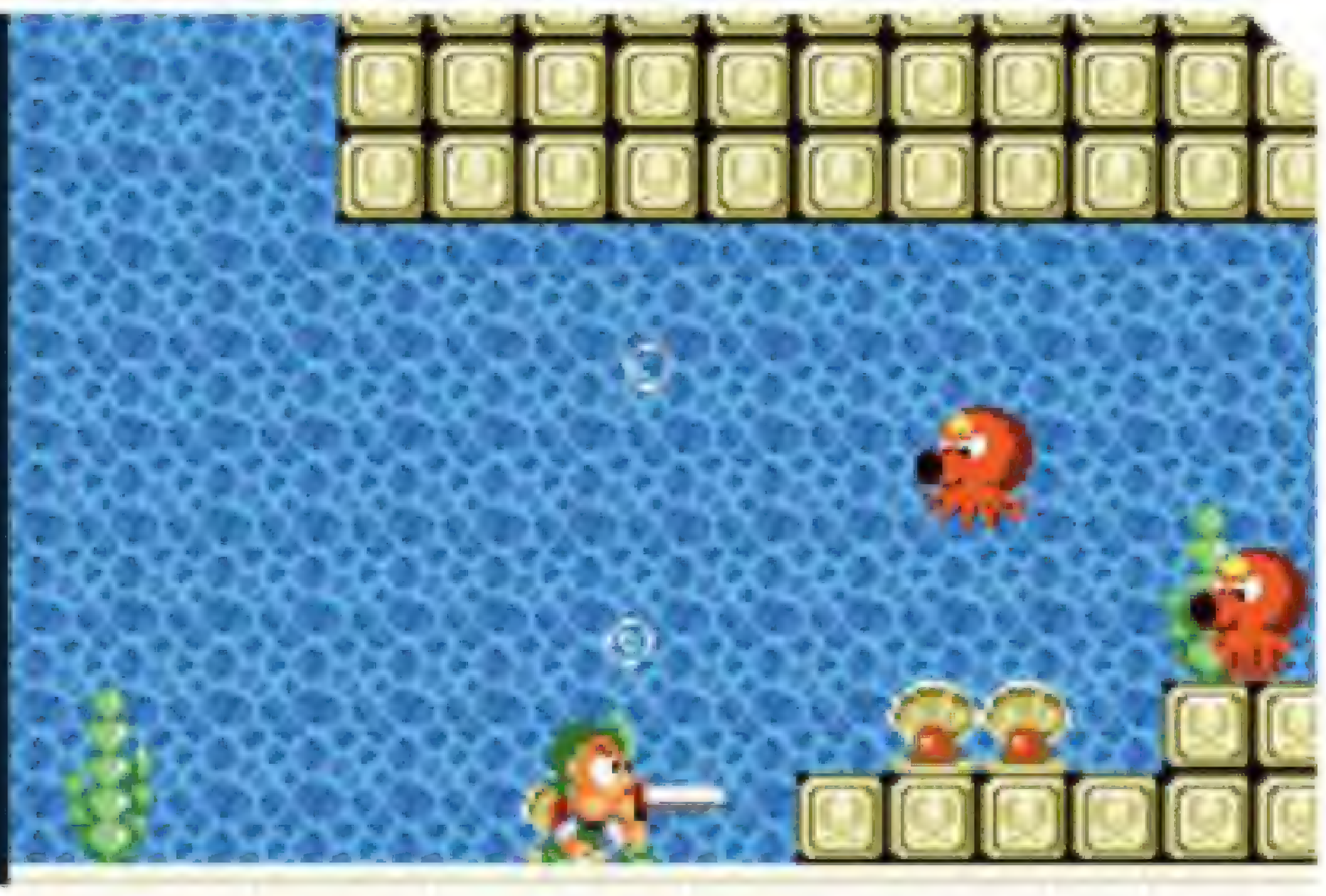
BEST WEAPON



Straight As An Arrow

No matter what form Wonder Boy uses in *The Dragon's Trap*, he's rarely defenceless. His dragon form has the ability to spit flame, while all his animal forms are handy with a sword. There are additional items that Wonder Boy has access to, and you'll need to use all of them if you ever want to break that dragon's curse. Many of them are magic-based, including simple fireballs and whirlwinds that will devastate anything that get in their way. Our favourite however is the bow and arrow, which immediately fires upwards; highly useful as it's the one area that Wonder Boy can't actually defend against.

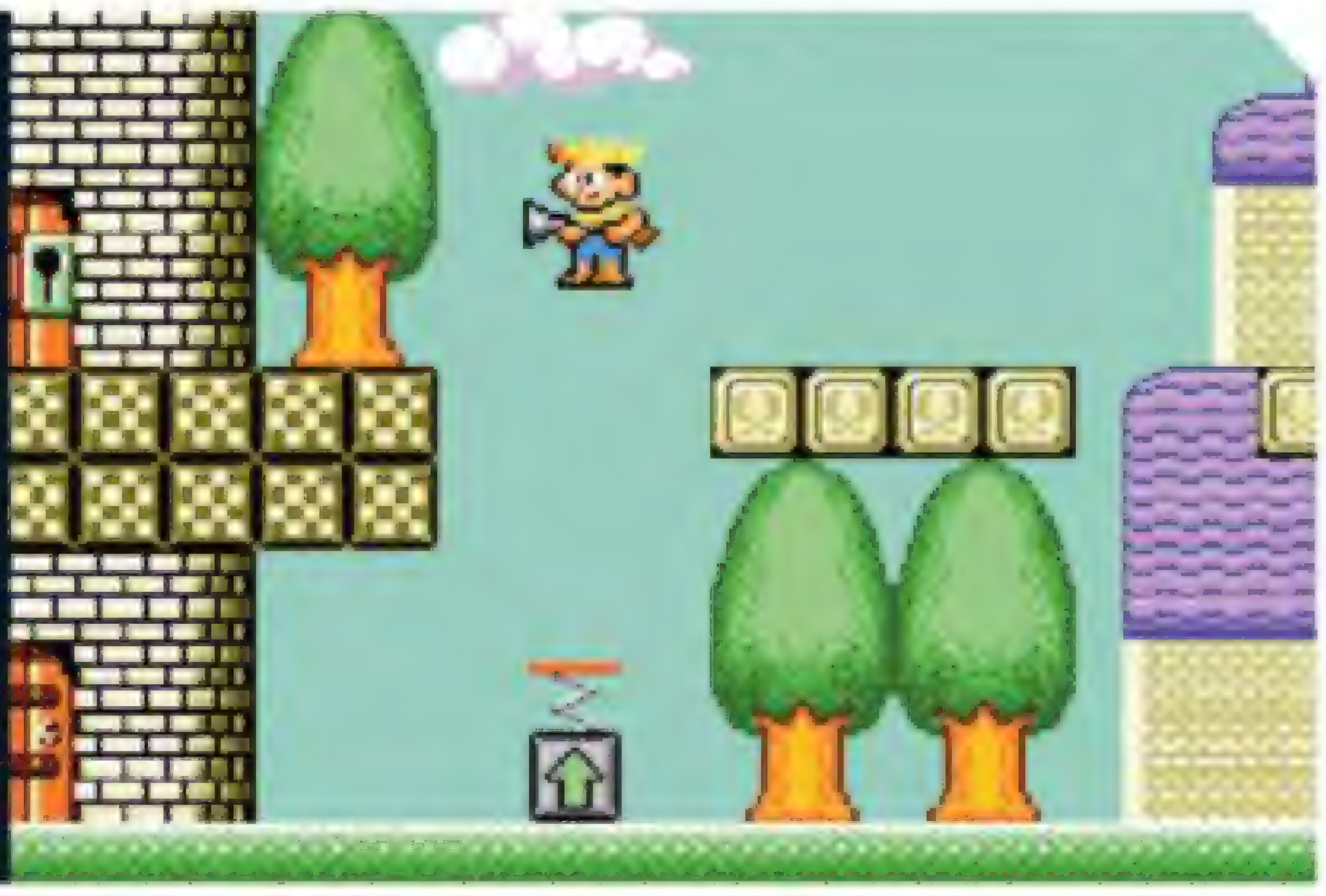
BEST LEVEL



Time For A Swim

One of the strengths of *Wonder Boy III: The Dragon's Trap* is that it's essentially a large open world that slowly opens up as you gain access to newer animal forms. While there are no individual levels in the traditional gaming sense, much of *Wonder Boy III* is nevertheless broken up into distinctive areas, ensuring plenty of variety as you attempt to shake the curse placed on you by the dying Mecha Dragon. The best sections for us are the excellent underwater levels that can be found in various sections of Monster Land. They're tough to navigate, but filled with cheerful music and plenty of detail.

STRANGEST VERSION



Comic Book Heroes

In addition to the Master System offering, there are three variants of *The Dragon's Trap*. A PC version appeared in 1991, with slightly enhanced visuals and better music, and was known as *Adventure Island* in Japan and *Dragon's Curse* in the US. There's also a Game Gear version, which was released in 1992 and was essentially the same as the Master System game with redesigned levels for the system's smaller screen. For true oddness, though, check out Tec Toy's offering based on the popular Brazilian comic *Turma Da Monica*, which keeps the level design and music, but replaces all the characters with heroes from the comic.

WONDER BOY III
PUSH START BUTTON
© SEGA 1989

IN THE KNOW

- **PLATFORM:** MASTER SYSTEM
- **PUBLISHER:** SEGA
- **DEVELOPER:** WESTONE
- **RELEASED:** 1989
- **GENRE:** ADVENTURE

What the press said… ages ago

MEAN MACHINES
95%

"This has to rank as one of the greatest Master System games ever! It has a look and feel slightly reminiscent of the Nintendo *Mario* series (no bad thing) and a depth of gameplay second to none. All in all, a very slick Sega product with universal appeal. Make sure it's in your collection now."

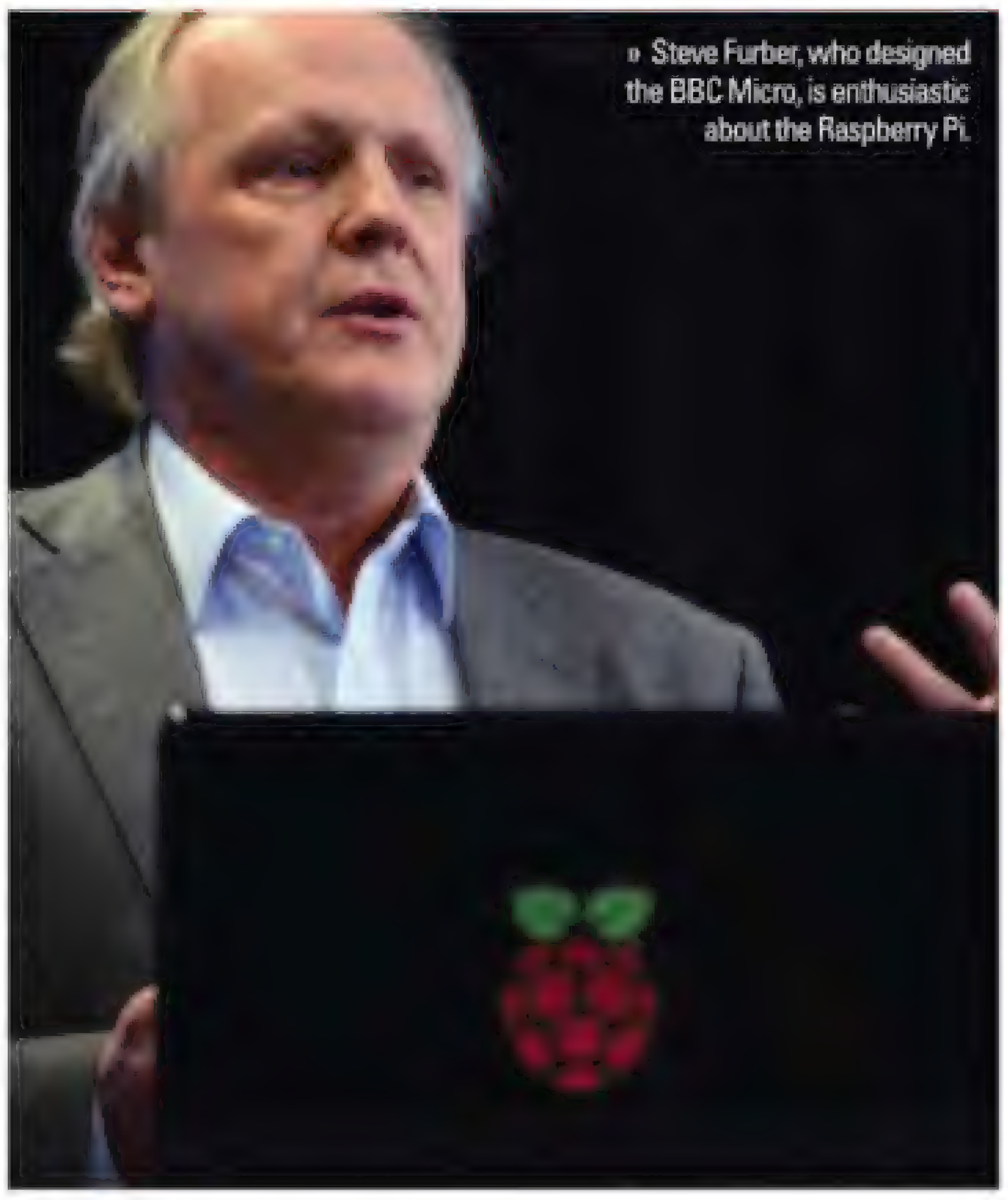
THE AMAZING NEW CONSOLES MAG!!
£1.75
NO 1 OCT
MEAN MACHINES
SEGA
MEGADRIVE
GX4000
NINTENDO
HE'S MAD!

What we think

Wonder Boy III is certainly a lot tougher than we remember it to be, but there's no denying that it's an exceptionally well designed game, with smart, *Metroid*-like elements that still hold up today.

INSIDE THE BBC MICRO

It was the computer that inspired a generation of programmers and introduced scores of children to computing. We talk to BBC Micro designer Steve Furber about how the iconic machine was made



» Steve Furber, who designed the BBC Micro, is enthusiastic about the Raspberry Pi.

The phone rings and Steve Furber picks it up. He listens to what the person on the other end has to say; he begins to feel uneasy. But the caller, Hermann Hauser, is desperate. As the co-founder of Acorn he is about to receive a visit from the BBC, which wants to create a new computer. Acorn is in the running to make it. But time is tight. He wants Steve Furber and his colleague Sophie Wilson to produce a functioning machine in less than a week.

"Can you have a processor like this for Friday?" Hauser asks, but Steve is clear. "No," he answers. He calls Wilson and gets the same answer. But in both cases, he pulls a trick. "He told us both that the other had said yes so we felt we had to agree," laughs Steve. "We were then committed." The BBC Micro was about to be born.

Many people have fond memories of the BBC Micro. It was the machine used in countless schools up and down Britain, the red keys and black/beige combination being an exciting pointer to the future. Steve, however, did not have the pleasure of playing around with computers when he was at Manchester Grammar School in the 1960s. Nor did he have a bank of machines available to him when he moved on to study the Mathematical Tripos at St John's College, Cambridge.

Steve was interested in the emerging technology, however, and while he was working on his PhD, he began to find the idea of computers rather fascinating. He decided he wanted to write his thesis electronically and in order to be able to do so, there was just one option available to him. He had to build his own machine. "In those days if you wanted to write a thesis electronically you had to build a computer and then you had to write a text editor. Then you could start writing the thesis. That's the way it was," he explains.

He found designing computers to be a lot of fun. In 1978, he was appointed the Rolls-Royce Research Fellow in Aerodynamics at Emmanuel College, Cambridge, which gave him even more of an excuse to play around: suddenly it made it a practical thing for him to do. Steve was also a member of

his university's processor group, which was full of many other students who built computers for the hell of it.

"I ended up with what was a hobbyist machine," he says with fond recollection. "It used a 6502 processor and it was built in a subrack. It had this little 160mm by 100mm Eurocard [the European standard format for PCB cards] and I hand-wired the components to connect them. The machine had a memory card and a display card and the key principle of operation was that the machine was designed so that the processor and the display had shared access to the memory."

In 1978, Acorn Computing was formed, rather handily, in Cambridge and Steve worked there on a casual basis before becoming an employee in 1980. The timing could not have been better because the BBC was about to embark on an ambitious project – one that Steve would prove to be an integral part of. ▶

IN THE KNOW

LAUNCH DATE: 1 December 1981
LAUNCH PRICE: £235 (Model A)
DIMENSIONS: 41x34.5x6.5cm
WEIGHT: 3.7kg
PROCESSOR: 2MHz MOS Technology 6502
RAM: 16KB **ROM:** 32KB
ON-BOARD LANGUAGE: BASIC
DISPLAY: 640 x 256 (2 colours), 320 x 256 (4 colours) or 160 x 256 (16 colours)
COLOURS: 16 colours in total
SOUND: Texas Instruments SN76489, four channels, mono
ASSOCIATED MAGAZINES: *BBC Micro User* (later *The Micro User*), *Beebug*, *Your Computer*

» Steve Furber, centre, working on the Proton computer before attention switched to the BBC Micro. Image courtesy of Chris Turner.

Designed by Acorn Computers Limited, Cambridge
video out
RGB
RS423
cassette
» The BBC Micro had plenty of outputs, making it extremely versatile.

BBC VARIANTS

Later models of the popular home computer and how they differed

MODEL A

■ Costing £299, which was a whopping amount in 1981, the BBC's Model A machine may have been the cheapest version but was firmly in the territory of rich parents (or at least those who were inspired by seeing the machine in schools). It has a 6502A processor, 2MHz speed, 16KB RAM expandable to 32, 32K ROM and three-channel sound.

MODEL B

■ With Model A having seen off competition from the likes of Sinclair Research to bag the BBC Micro contract, Model B was a small enhancement, allowing its 32KB of RAM to expand to 64K. Whereas Model A was made to run with a tape recorder, however, B could use a 5.25-inch floppy drive and it could also use software made to run on the disk operating system CP/M.

MASTER 128

■ In 1986, Acorn devised the Micro's successor, the BBC Master 128. As the name suggests, it has 128KB of RAM. Although it promised backwards compatibility, it wasn't as smooth as the makers would have liked, but it was a speedier machine and there were two cartridge slots above the new numerical keyboard. It ditched the 6502 CPU in favour of the 65SC12.

MASTER COMPACT

■ A more unusual machine than the rest, the Compact had a keyboard with a motherboard built in, together with a second unit on which the monitor sat, containing a power supply and a 3.5-inch drive (the smaller floppies being seen as standard at this point). There were no cartridge slots and it cost a strange £451.25. The keyboard used a rubber-plastic moulding membrane.

▶ In 1981, The BBC had a couple of television channels, four national radio stations and lots of regional presenters around the country to provide local content. BBC Online did not exist. Radio 5 Live was years away. As for the digital TV channels, well even Sky hadn't launched in the UK at this stage.

But broadcasting wasn't the only thing on the mind of BBC executives. What was concerning the BBC more than anything was computing. The broadcaster sensed that there was a growing interest in technology of this kind, with children becoming turned on to arcades, electronic games proving popular and a range of build-your-own computer kits being all the rage with the dads. So it began to put out feelers for a new computer that it wanted to lend its name to.

Many companies were approached by the BBC. The idea was that the new machine would be at the centre of a series of television programmes based on the rise of the microprocessor and the fact they were becoming increasingly important. The programmes would be practical and hands on, encouraging viewers to go away and reproduce what they saw. To do this properly, the BBC felt the series would need to be based on a particular machine.

"The BBC had a spec for the computer and they went around a number of UK companies basically seeing who wanted to build it," says Steve. "It was a competitive process, the details of which I'm not familiar with."

At the time, Acorn had been designing a machine that was going to be called Proton. This was to be the successor to the Atom computer that was in production, selling quite well and leading to a desire for a follow-up machine. "We sketched the Proton," says Steve. "We sketched it based on the machine I had designed at university. It was designed as a dual processor. We realised that 16-bit processors were coming and we wanted to use the 8-bit processor as an I/O front end and have a second processor attached to a generic interface. So there was a sketch but no more than a sketch, and certainly not a diagram."

When the BBC Computer Literacy Project began asking for companies to bid for the rights to manufacture the new machine, it was decided that the Proton would be used as the base. The focus swiftly moved towards producing something that would impress the BBC when they came calling and as well as designing the innards, attention was also paid to what was going to wrap around it.

Step forward industrial designer Alan Boothroyd who designed the casing. This was produced in the same week that the prototype innards were being created. It was important for Acorn to be able to show off not only what was inside but what it would look like on the outside too. "When the BBC were due to come that Friday, we wanted to have the model of the case on one desk giving an idea of the design and on the other desk we wanted a working, wired circuit board so we could say this is what it will work like," says Steve.

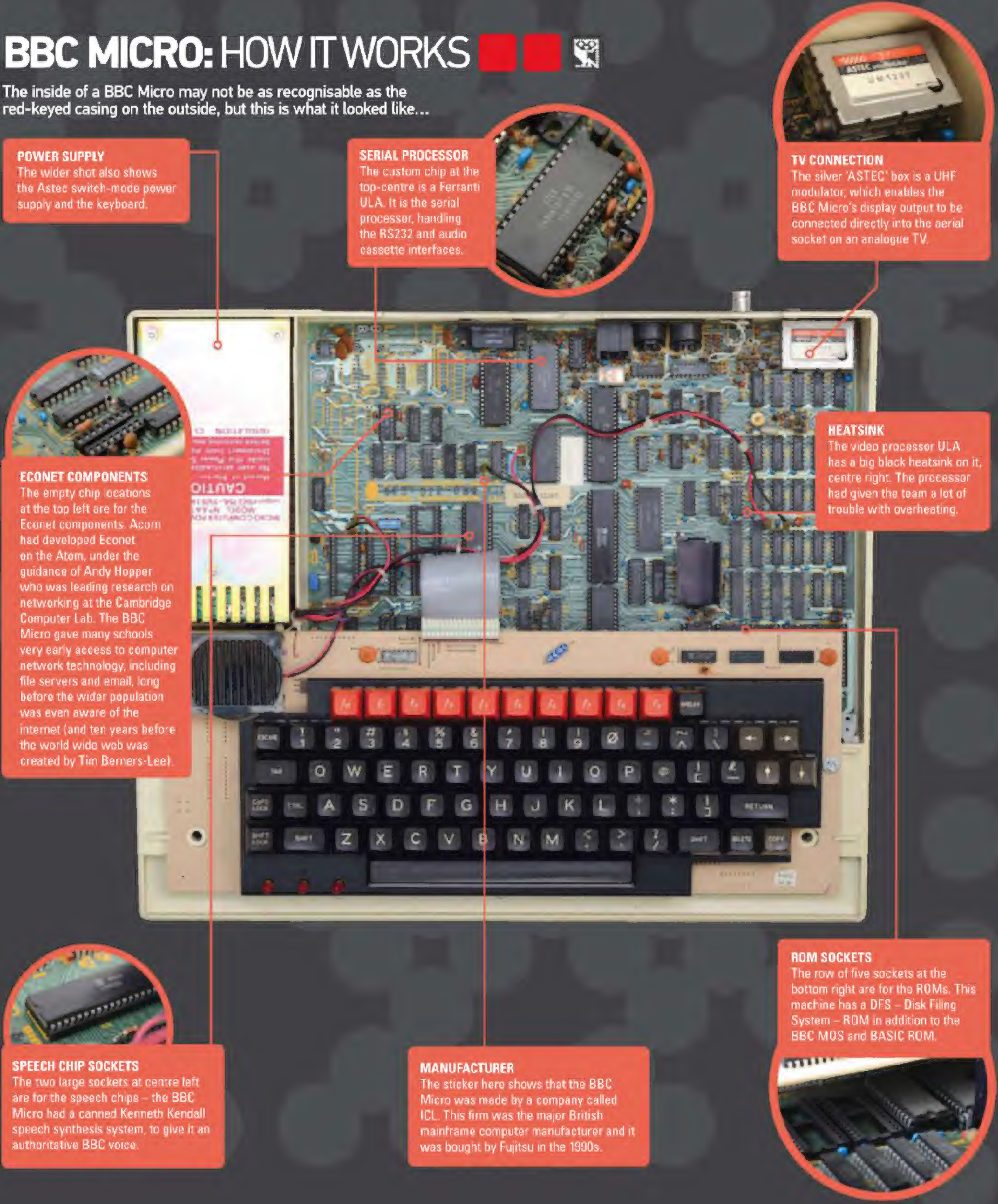
Progress was fast on the latter. "First we had the detailed circuit diagram, then we got Ramanuj Banerjee from the Cambridge University Computer Lab in to wire-wrap the circuit," remembers Steve. "At this point, we had to debug the machine to make it work and what we had on that Friday was not the final BBC Micro circuit but it was pretty close. It was strongly based on my machine which had become the Proton, as I've said. For cost reasons the BBC Micro was just the front end of the dual processes we conceived, although of course the BBC Micro gained second processors."

The BBC Micro went from a sketch to a functioning machine in less than a week, which was a major triumph for the team. Acorn emerged as the winner. It was asked to build and design the BBC Micro to a spec that would be agreed with the BBC. "I think one of the things that influenced them into choosing Acorn was the fact we could move so fast," says Steve. "They'd been dealing with other companies who had made less progress in a year than we made in a week, so, who knows, that's my impression of it." As for the external design, the red keys of the keyboard that was showcased that day became the BBC trademark and they remained across many Acorn products with a BBC link. ▶

side 1
ACORNSOFT
SPEECH!

BBC MICRO: HOW IT WORKS

The inside of a BBC Micro may not be as recognisable as the red-keyed casing on the outside, but this is what it looked like…



POWER SUPPLY
The wider shot also shows the Astec switch-mode power supply and the keyboard.

SERIAL PROCESSOR
The custom chip at the top-centre is a Ferranti ULA. It is the serial processor, handling the RS232 and audio cassette interfaces.

TV CONNECTION
The silver 'ASTEC' box is a UHF modulator, which enables the BBC Micro's display output to be connected directly into the aerial socket on an analogue TV.

ECONET COMPONENTS
The empty chip locations at the top left are for the Econet components. Acorn had developed Econet on the Atom, under the guidance of Andy Hopper who was leading research on networking at the Cambridge Computer Lab. The BBC Micro gave many schools very early access to computer network technology, including file servers and email, long before the wider population was even aware of the internet (and ten years before the world wide web was created by Tim Berners-Lee).

HEATSINK
The video processor ULA has a big black heatsink on it, centre right. The processor had given the team a lot of trouble with overheating.

ROM SOCKETS
The row of five sockets at the bottom right are for the ROMs. This machine has a DFS – Disk Filing System – ROM in addition to the BBC MOS and BASIC ROM.

SPEECH CHIP SOCKETS
The two large sockets at centre left are for the speech chips – the BBC Micro had a canned Kenneth Kendall speech synthesis system, to give it an authoritative BBC voice.

MANUFACTURER
The sticker here shows that the BBC Micro was made by a company called ICL. This firm was the major British mainframe computer manufacturer and it was bought by Fujitsu in the 1990s.

STEVE **FURBER ON** DAVID **BRABEN**

» Steve Furber talking at a Raspberry Pi Jamboree event in Manchester.

■ Although David Braben is perhaps the best-known gaming 'celebrity' for the BBC Micro, his sterling work on *Elite* with Ian Bell proving to be of real lasting value, Steve Furber and David Braben did not meet for a long time, and certainly not prior to the game's launch.

"I think we have been in the same room at some point, but my first knowledge of David Braben was when *Elite* came out on the BBC Micro, which was the most spectacular game we've ever seen."

Not that Steve rates the space trading game – which some claim to be the best slice of interactive entertainment ever made – as the one title he would prefer to play on the system. "My favourite game is actually *Aviator* because my profession was aerodynamics. I was always very interested in aeroplanes as a boy and *Aviator* gave me the opportunity to fly my own aeroplane on BBC Micro. There was a dynamic with aeroplanes and a dynamic with spaceships, so *Aviator* was the key application for me. That was the fulfilment of why I started playing with computers. I thought of them as a way to do a flight simulator."

With the BBC convinced Acorn could deliver, it was time to start turning the prototype into a manufacturable machine. Steve's design for the Proton was not the BBC's starting spec and there was much discussion as to what the final spec should be. But the effort, Acorn felt, was more than worth it. The BBC was confident that 12,000 machines would be sold on the back of the TV programmes. "We now know that was a huge underestimate," says Steve. "Nobody foresaw the rising interest and the huge volume of interest in developing computers in the early Eighties. The 12,000 became 1.5 million machines in about five years."

First of all, though, they had to move on from the prototype. "The prototype was around April… in 1981 and the machine was launched… far less than a year later," Steve says. "We'd decided to reduce the number of chips by using the ULAs in a couple of functions. We created the video ULA which divided the 16MHz master clock into lower frequencies for use by other integrated circuits and serialised the display memory into an RGB video signal."

The ULA was an Uncommitted Logic Array, a Ferranti product that allowed a number of logic gates to be configured to implement a bespoke function on a single chip. In the process of making the BBC Micro, the number of chips needed was reduced by "10 or 20" Steve reckons, adding that there were still 102 chips left on the BBC Micro board. "A lot of effort went into cleaning up schematics, getting the circuit board PCB and ULAs inside and implemented, and of course building the software," he recalls. "That was at least as big a job as getting hardware out. My involvement was mainly hardware, though."

BBC BASIC was written by Sophie Wilson and Paul Bond, who led the development of the OS. "There were a lot of people involved in getting the machine ready to sail in January, where ready is a relative term," adds Steve. "The initial machines were shipped with poor power supplies – they got too hot. They were linear and were rapidly replaced with switching power supplies that did not get hot and were very reliable. But there is a problem if you have a BBC Micro today: the electrolytic capacitors in those switching supplies are drying out, so they need replacing. Then again, the machines are 30 years old."

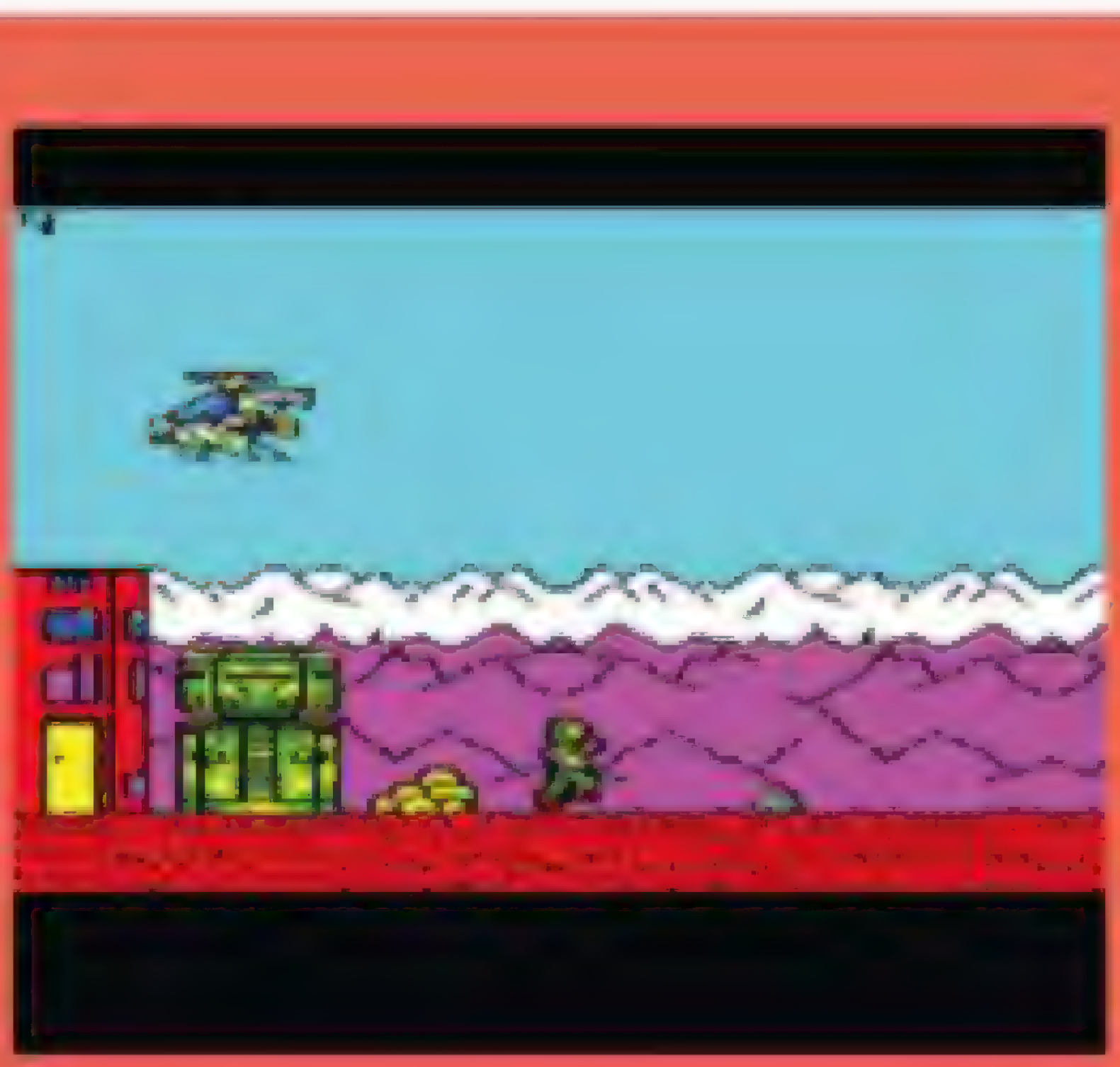
While the team worked on producing the BBC Micro, the broadcaster's learning arm remained close to the project. "It was a collaboration because the BBC kept a stern grip of what's happening and all specification issues had to be agreed with the BBC," says Steve. "So yes, they were very firmly involved. The badge was not just a brand – [it] represented a lot of technical input from [the] BBC."

One big concern was the pressure to keep the costs down while not compromising quality or reliability. It was a struggle. "I think the realisation that there was a huge education market came a little bit later, once the machine was underway," reveals Steve. "One of the criticisms of the machine was it was a bit too expensive, though. Of course we didn't engineer it with a view to the cost running away, but we did engineer it to be good and to be robust and high quality and that pushed the price up. The BBC Micro keyboard would really take a hammering and it was expensive because the only way you could build a robust keyboard then was expensive."

He says the BBC wanted to go even further and its key input was to come up with ideas of the sorts of things they wanted: to retain the second processor capability; and to be able to add floppy disk drives later, even though they were phenomenally expensive. "They wanted to add a Prestel receiver. This is before the days of

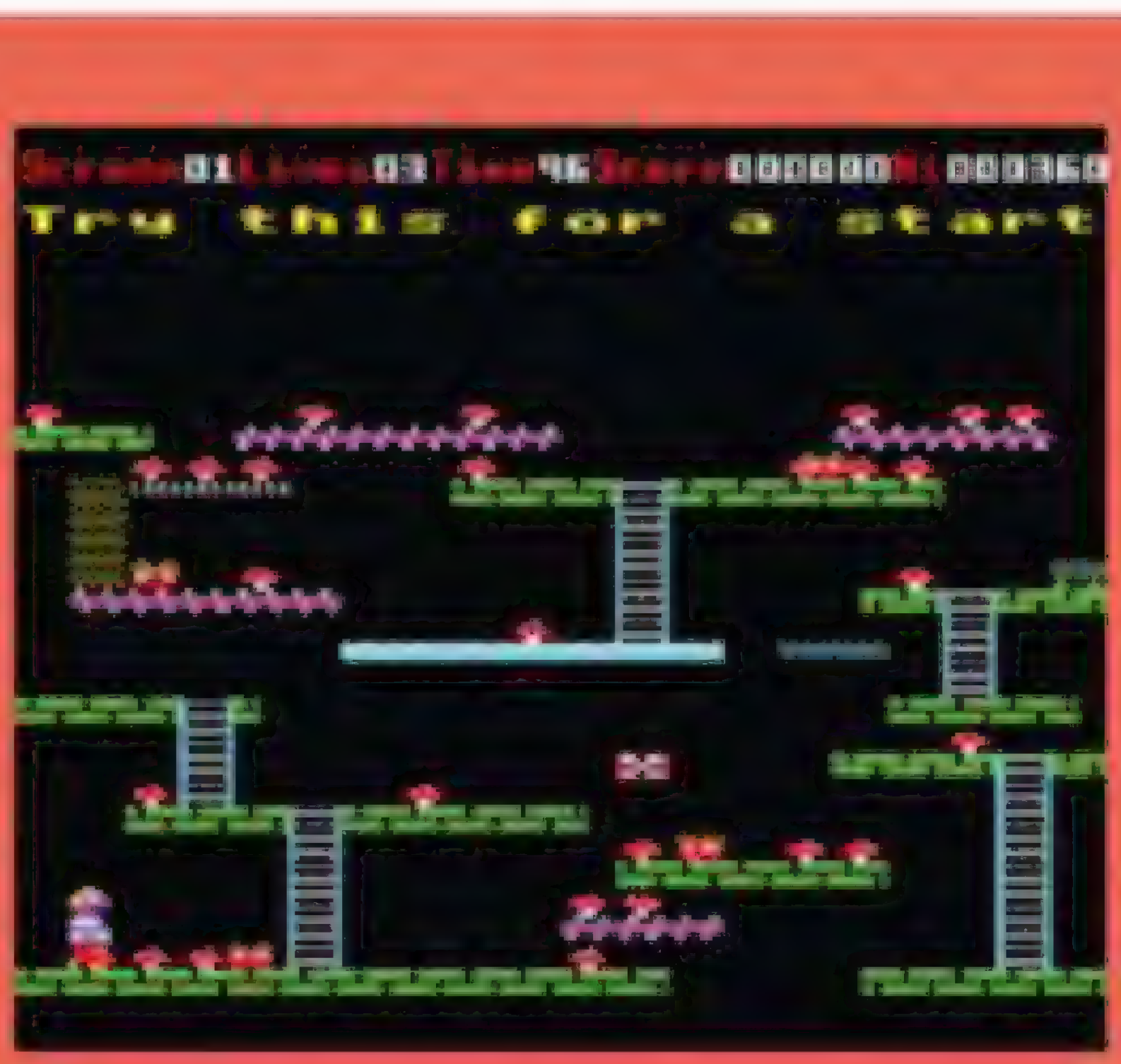
BBC MICRO **EXCLUSIVES**

If you're picking up a Micro, these are the games you need to own



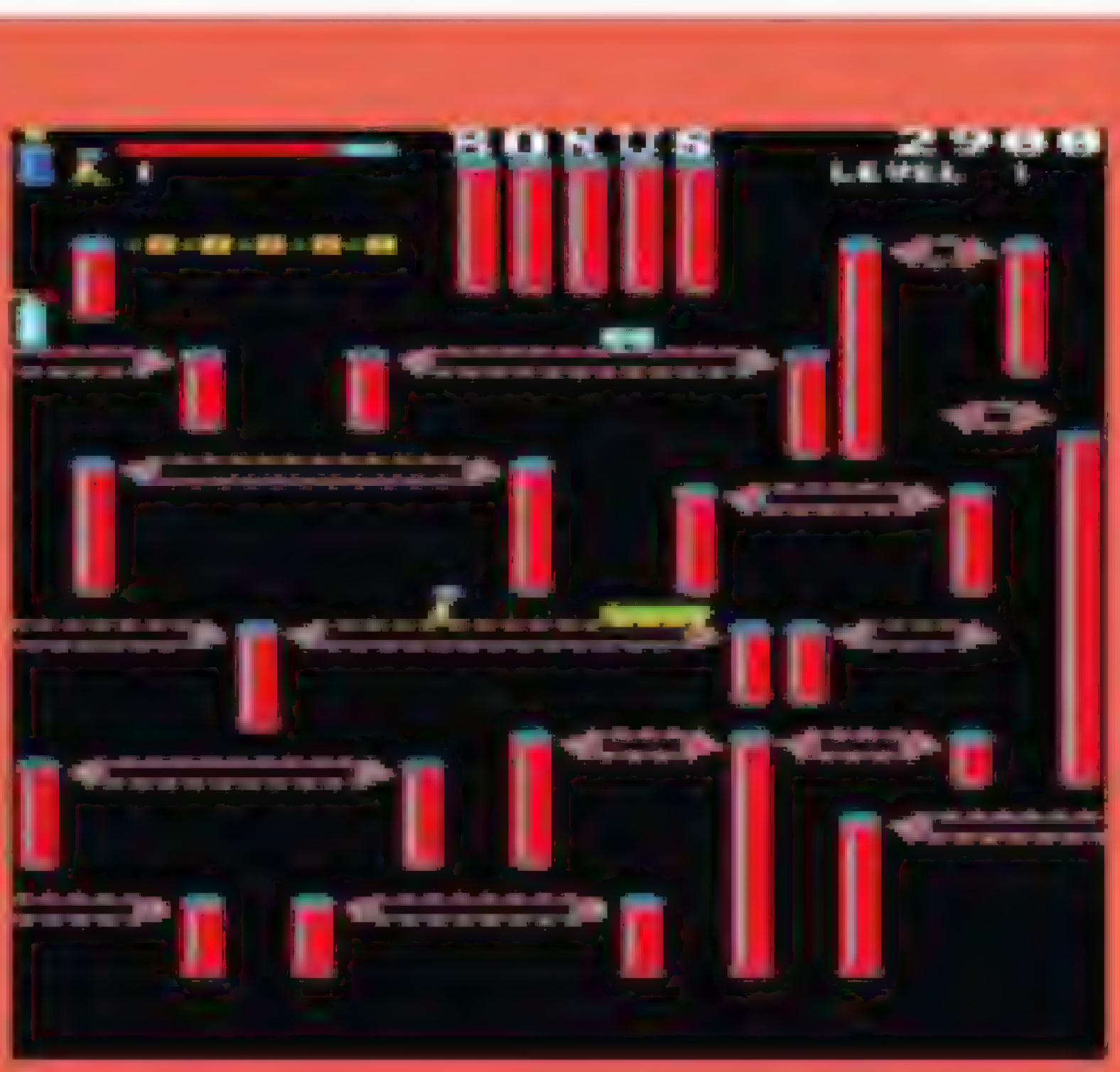
STRYKER'S RUN

■ Designed by Chris Roberts and Philip Mellor, this colourful 2D side-scroller was released for the BBC Micro and BBC Master. It was part of a prolific run by Superior Software on the Beeb machines and this was arguably one of its biggest hits as players took control of Commander John Stryker, blasting enemies on a mission to deliver vital intelligence.



MAGIC MUSHROOMS

■ As a single-screen platformer with nine levels, *Magic Mushrooms* wasn't quite as trippy as the name would suggest but still a fine, sanitised clone of *Manic Miner*. The difficulty level was quite high, though – it was hard not to mistime jumps, get frustrated by moving platforms or be forever climbing the same ladders on the way to collect lots of mushrooms.



FELIX MEETS THE EVIL WEEVILS

■ The final part of the *Felix* trilogy was a standard platform game with the obligatory collectables. The hero had to put up with some Evil Weevils that had not only managed to get themselves into the factory but were out to kill. A little piece of trivia: the game was originally going to be called *Felix Meets The Weevils*.

» Ports allowed you to connect the BBC Micro up to a variety of different devices, including printers and similar peripherals.

BRITISH BROADCASTING CORPORATION
MICROCOMPUTER SYSTEM
f9
BREAK

» The cute owl symbol soon became iconic with owners.

the internet," says Steve. "And they were keen to have ways of distributing software to go with their programmes so we built a system that would pick up unused lines from Prestel, which is the old digital information overlaid on the analogue TV transmission. The unused spare lines could be used for delivering software to the machine. That was a box you could buy. The BBC Micro wasn't cheap, but you could pick up free software off the air."

The BBC wanted a lot of input-output devices. "One of the things that made the BBC Micro so useful was the number of things you could plug in – joysticks, analogue things, a wide range of peripherals. You could almost fill a desk with BBC Micro peripherals if you plugged them all in at once. That did seem to push the budget a bit," laughs Steve. But it sold. As we have seen, it shifted hundreds of thousands of units and Steve says everyone was surprised although there were some early indicators. "In 1982 we agreed to do a seminar at the Institution of Electrical Engineers in London, now the Institution of Engineering and Technology. They often run seminars and get 200 or 300 people there. At the BBC Micro seminar people booked coach trips from Birmingham, and three times the number of people arrived than could fit in the room. They had to send two-thirds of the people home because they couldn't fit them in because of health and safety. So we ended up doing the seminar two more times but, yes, that told us this machine was going to be big." Today, he says the legacy continues. Although Britain doesn't produce boxed computers today, the UK remains hugely influential in the global computer business. One of the spin-offs from Acorn was ARM, which is now responsible for powering 75 per cent of the devices connected to the internet. ARM is a huge global force.

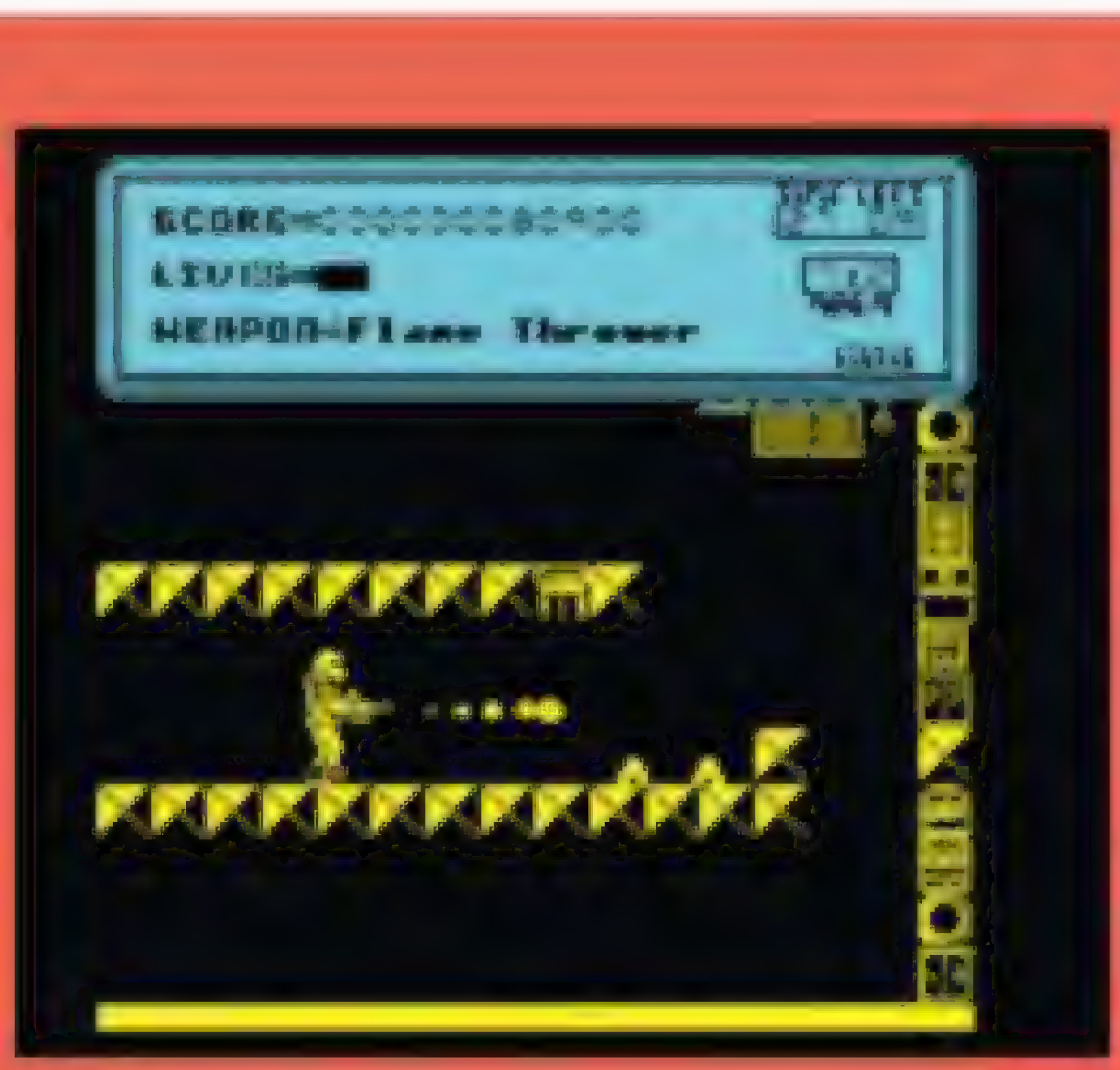
> **"The BBC Micro keyboard would really take a hammering"**
> STEVE FURBER

"Last year more ARM processors shipped than Intel had shipped in its entire 45-year history. Cambridge Silicon Radio has a very strong position in Bluetooth too and there are several British companies that are highly influential in this game."

Things have also turned full circle for Steve. He is excited by the Raspberry Pi which has the backing of David Braben, the creator of the BBC Micro's most famous game, *Elite*. Like the BBC Micro, the Pi is being delivered to schools to help children to learn. Steve believes things went off track when children were "locked out" of computing by graphical user interfaces. "The major use of computers is in business for people to use for work, so that's why we don't expect people to get their hands dirty with code on a day-to-day basis," he notes. "But with the BBC Micro, you could turn the machine on and be in a programming environment. I still meet people who tell me that the Beeb was a career-changing event for them. That's what they used to started programming… The graphical user interfaces were not bad – not everybody wants to program… or [has] the mindset required to be reasonable programmers, so you have to deliver machines to different levels. But at the moment, too many people who would otherwise find programming very engaging are being turned off by PowerPoint and all of those other apps schools teach children to learn."

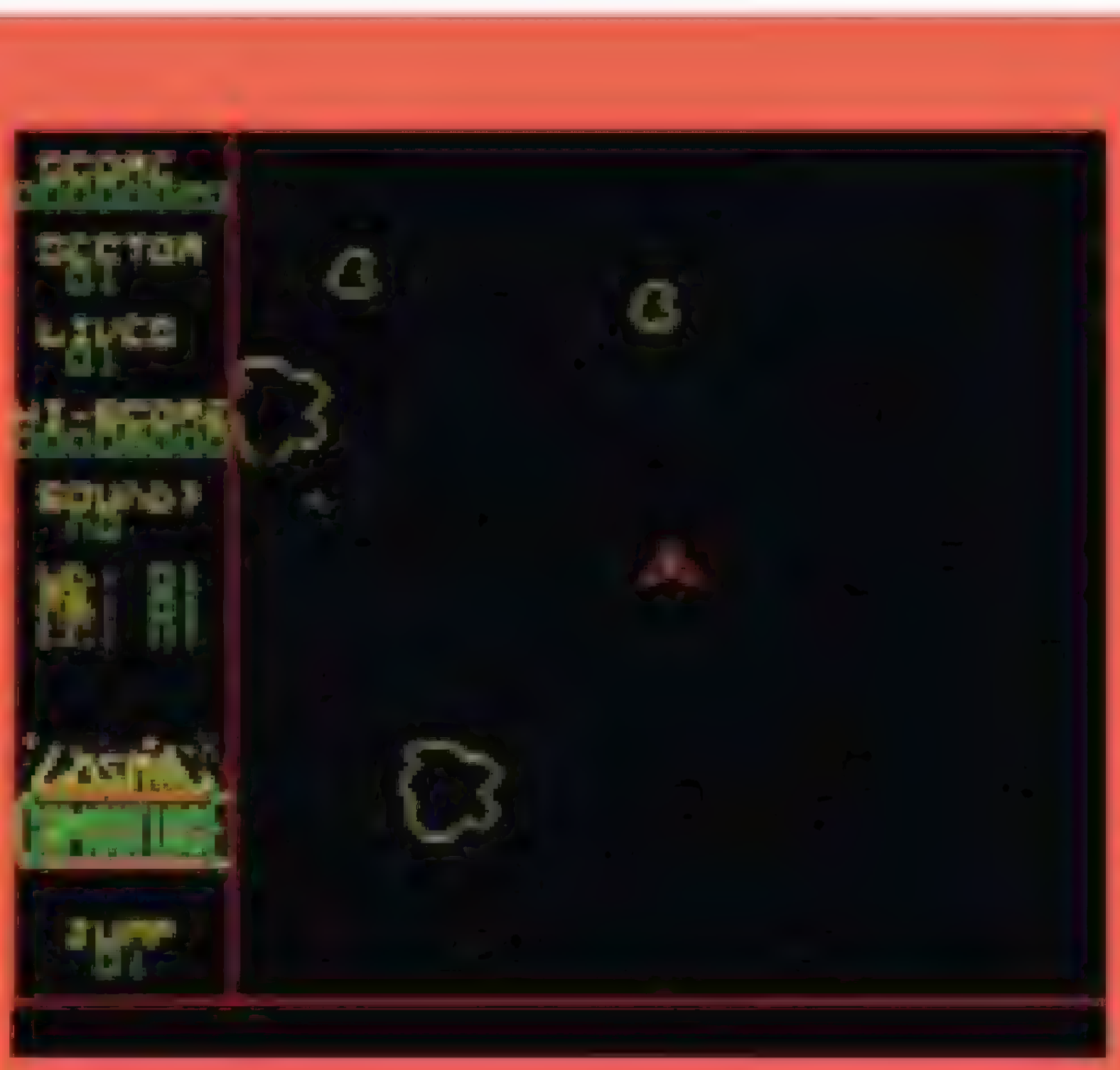
In the end, nine BBC branded computers were produced. The BBC Micro is considered as the catch-all term for the Model A, B, B+64, B+128, Master 128, and Master Compact. Subsequent models are considered as part of Acorn's Archimedes series.

"They were hugely exciting times," says Steve. "It was the first point in history where you could really start putting computers into everybody's hands. It was a great time to be involved."



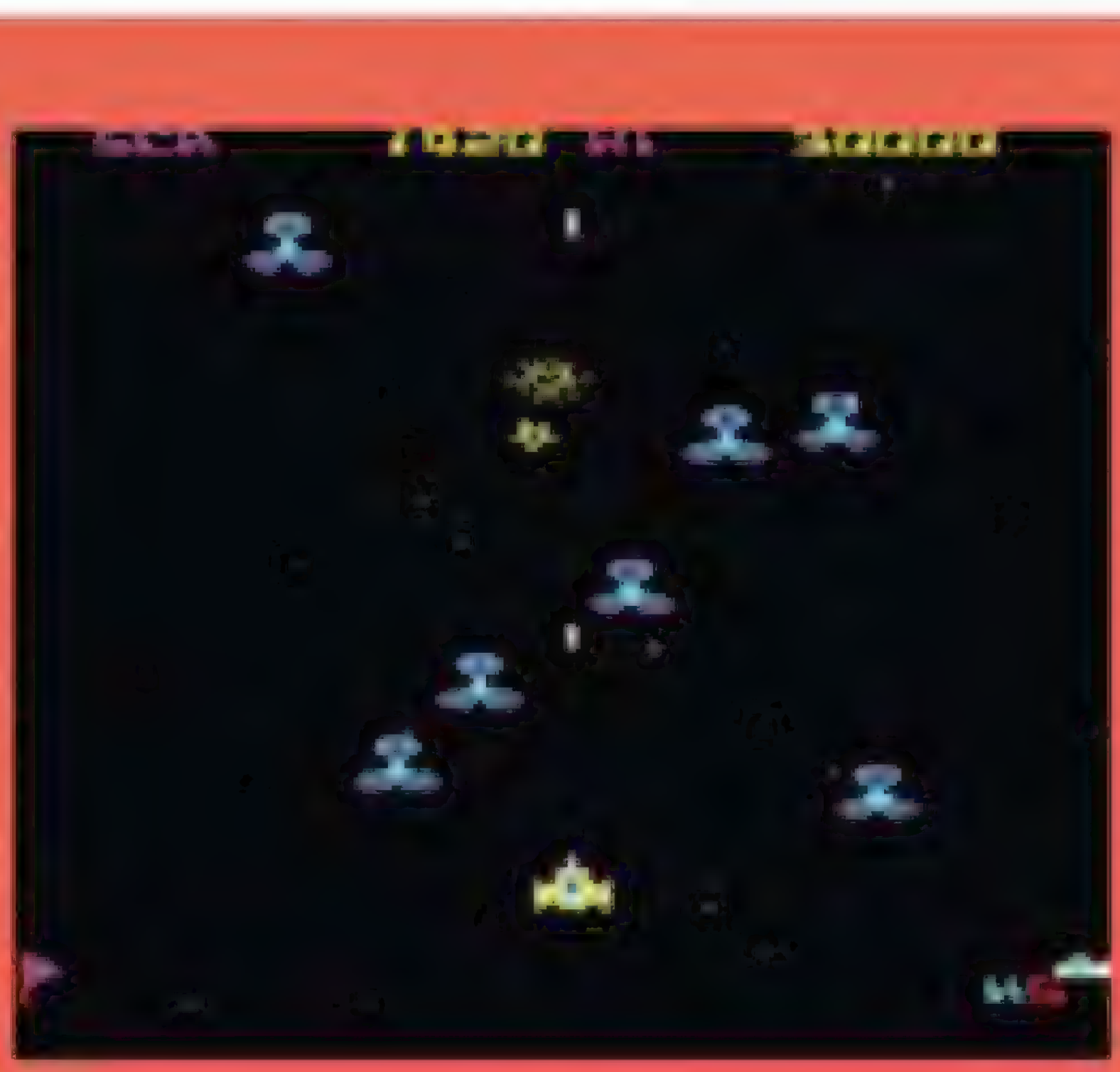
BEYOND INFINITY – CUTE TO KILL

■ With a brilliant pulsating soundtrack, this game was Spectrum-like in appearance: the monochrome graphics didn't really do the BBC Micro justice even if they were well drawn. And yet get beyond that and into the realms of this single-player sci-fi shoot-'em-up platformer and you found you had a great game on your hands.



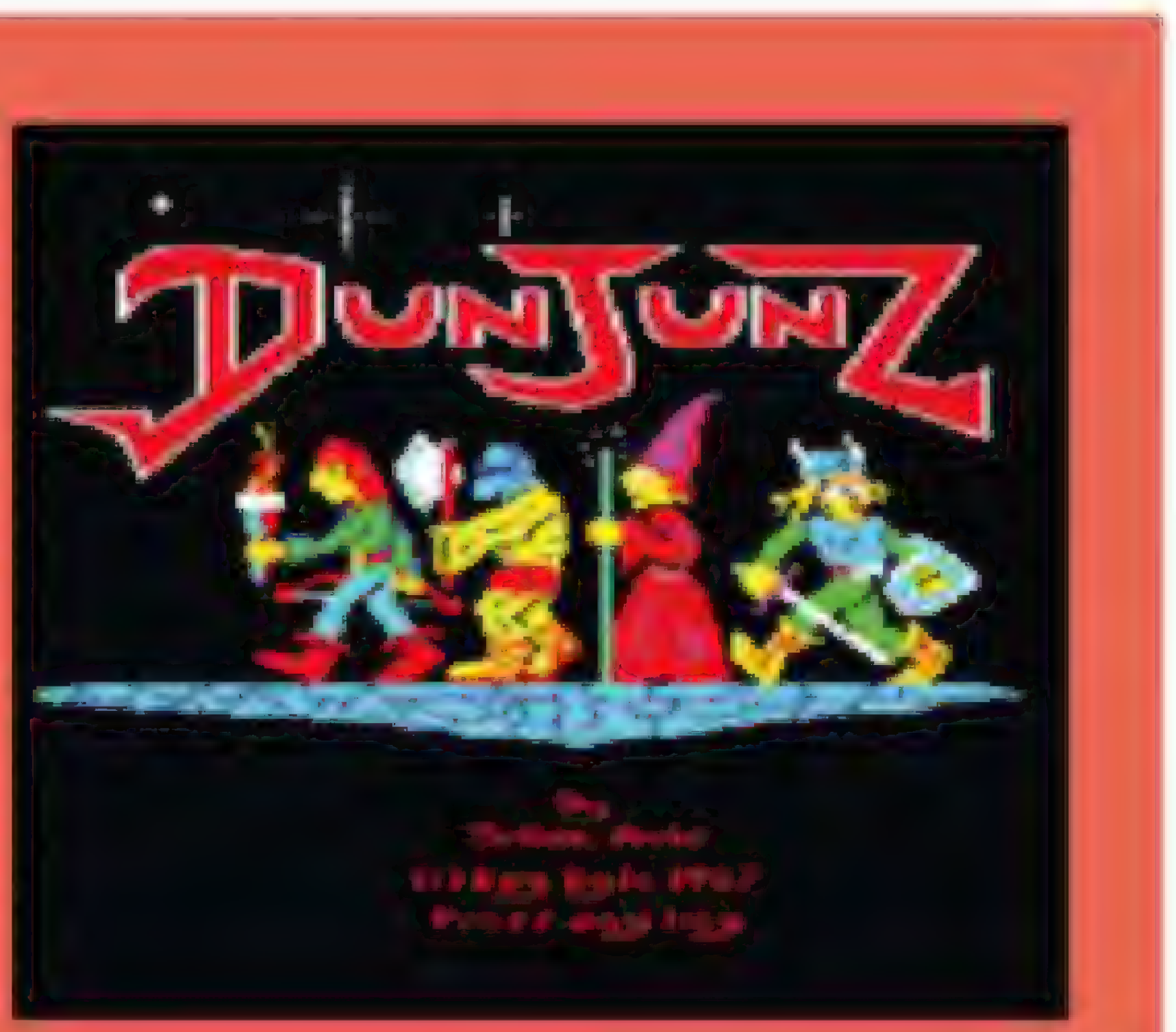
COSMIC CAMOUFLAGE

■ It is a clone of *Asteroids*, but *Meteors* sequel *Cosmic Camouflage* is an example of a solid release from Acornsoft. It was highly praised by *Electron User* magazine and it was bundled on a compilation with *Play It Again Sam 4*, *Frak!*, *Spellbinder* and *Grand Prix Construction Set*. Lots of spot effects pierce the eardrums as your red ship's ammo eats into yellow rock.



GALAFORCE

■ Superior Software's *Galaforce* by Kevin Edwards was a shmup that threw you straight into the action, your ship flailing left and right as you hammered the fire button to ward off invaders. You would get a brief respite of mere seconds before waves of more pink and green nasties came your way. Carnage and beauty and a relentless noise of fire to annoy the teachers.



DUNJUNZ

■ Bug Byte's *Dunjunz* was a clone of *Gauntlet*, but it had real depth. Allowing up to four players, this was an action adventure involving a Ranger, Wizard, Barbarian and Warrior searching for the Chalice. The characters had their own quirks and use and this helped to notch up the gameplay from mere button bashing. A sterling effort by programmer Julian Avis.

THE MAKING OF

Baldur's Gate

The FPS had all but dominated PC gaming in the Nineties, with shotguns overshadowing magic missiles, and cacodemons replacing long-forgotten kobolds. But in 1998 one title managed to keep the beardies from pulling out their character sheets and dusting off their d20s. The game was Baldur's Gate. We pick the brains of the crew who made it happen

While 1996's *Diablo* appealed to action junkies with no respect for their mice, fans of more traditional computer RPGs experienced a severe drought of classic fantasy fare for much of the decade. Thankfully, *Fallout* came along late in 1997 and proved that not only were PCs a great system for roleplaying, but the stat-loving, virtual-dice-rolling public was more than ready for its next RPG epic. Despite its popularity and what it did to reinvigorate role-playing on home computers, post-nuclear was not everyone's cup of irradiated tea, and gamers were clamouring for a return to *Dungeons & Dragons*. Right then, a fledgling Canadian developer named BioWare were kicking off a project that would answer this call.

» [PC] He's just misunderstood, really…

The company had released their first title in 1996; a mech combat sim called *Shattered Steel*, and were aiming to go real-time strategy for their next game.

"*Battleground Infinity* was going to be about Ragnarok, the Norse end of days," says Trent Oster, who worked as a modeller on the original *Baldur's Gate* and is now heading up development of *Baldur's Gate: Enhanced Edition*. "It was to be a game about all the ancient deities at war. The storyline never really got much development as the early focus was on building a technology prototype, which was hacked together out of a Direct Draw sample app. A rough demo was built showing off the big features (16-bit colour and all unique area art). The *Battleground Infinity* demo was sent around to many of the major publishers of the day and they all were not interested. Our producer at Interplay on *Shattered Steel*, one Feargus Urquhart heard about the demo and asked to see it."

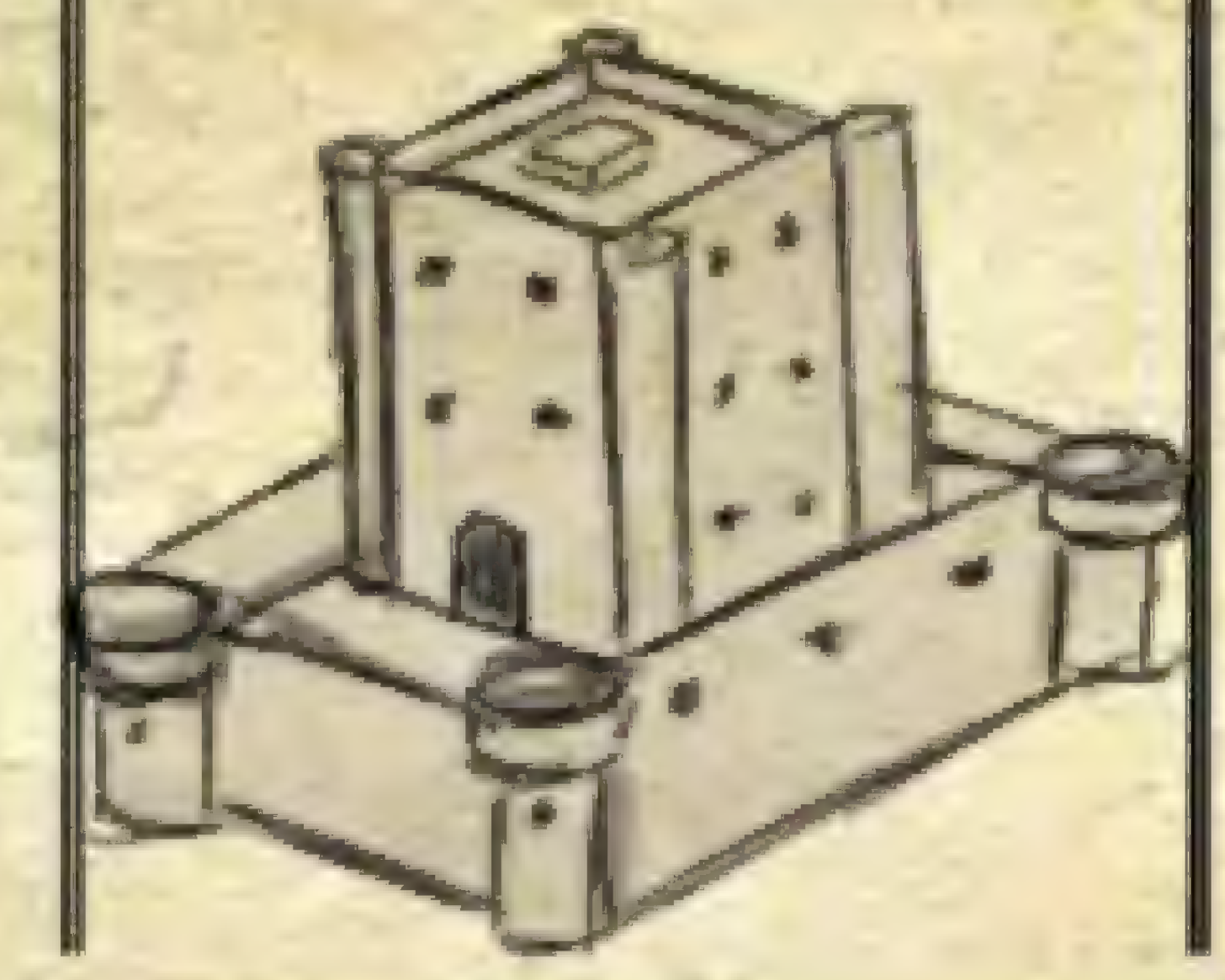
During *Shattered Steel*'s production, Urquhart was promoted to division head for Interplay's newly created TSR Division, which would eventually be named Black Isle Studios.

"As *Shattered Steel* was completing," recalls Chris Parker, Black Isle Studios' producer on *Baldur's Gate* and project director for *South Park: The Stick Of Truth* at Obsidian, "Feargus, Ray and Greg got together to talk about upcoming possibilities and they had a chocolate-and-peanut-butter moment: Feargus had the *D&D* licence and BioWare had an RTS-style RPG. The title was signed soon afterwards as *Forgotten Realms RPG* and would eventually become *Baldur's Gate*."

"Since everyone at BioWare was a total *D&D* fanboy at the time, the team jumped on the chance," adds Trent. "Our licensing rep at TSR, a fellow named Jim Bishop hooked us up huge with source material. At one point I think James [Ohlen] had every 2nd Edition book in his office." James, who was lead designer on *Baldur's Gate*, had been running a pen and paper campaign set on the Sword Coast and it was an easy choice to use the titular city as the setting for the computer game.

IN THE KNOW

» **PUBLISHER:** BLACK ISLE STUDIOS
» **DEVELOPER:** BIOWARE
» **RELEASED:** 1998
» **PLATFORM:** PC, MAC
» **GENRE:** RPG
» **EXPECT TO PAY:** $9.99 (£6.20)



"This was mainly because Baldur's Gate was underdeveloped – no novels, game modules or much at all," explains James, who is still with BioWare and now in the role of game director for *Star Wars: The Old Republic*. "RPGs are about allowing the player's created character to be the hero of the story. When working within an established universe, you don't want to set an RPG in a place that is already the focus of movies/TV/novels, because then you'll have significant restrictions. Those restrictions make it difficult to tell an epic story where the player's actions can have a significant impact."

With a solid licence secured and campaign setting in hand, the small but steadily growing team at BioWare got to work completing the transformation of their prototype RTS technology into an isometric role-playing game, aiming high from the get-go.

"From the outset the *BG* games were intended to be the next-generation of the venerated Gold Box games," says Chris. "At the same time, the RTS genre was proving what you could do strategically in a real-time environment. It seemed like a natural idea to marry the real-time strategy of RTS games with the depth and party-based play of past-gen RPGs – and of course, it worked out very well once we figured out pausing with the spacebar."

It was a transition that flowed perfectly: *Battleground Infinity* was no more – and the Infinity Engine was born. The addition of pausing mid-combat allowed the player to issue commands to party members in the heat of battle without the timing pressure present in an RTS. This included managing spell books, quaffing healing potions or getting your injured frontliner the hell out of the fray so they could change from melee to ranged weapons. It was a simple feature, but central to the Infinity Engine, and the same technology would ▶

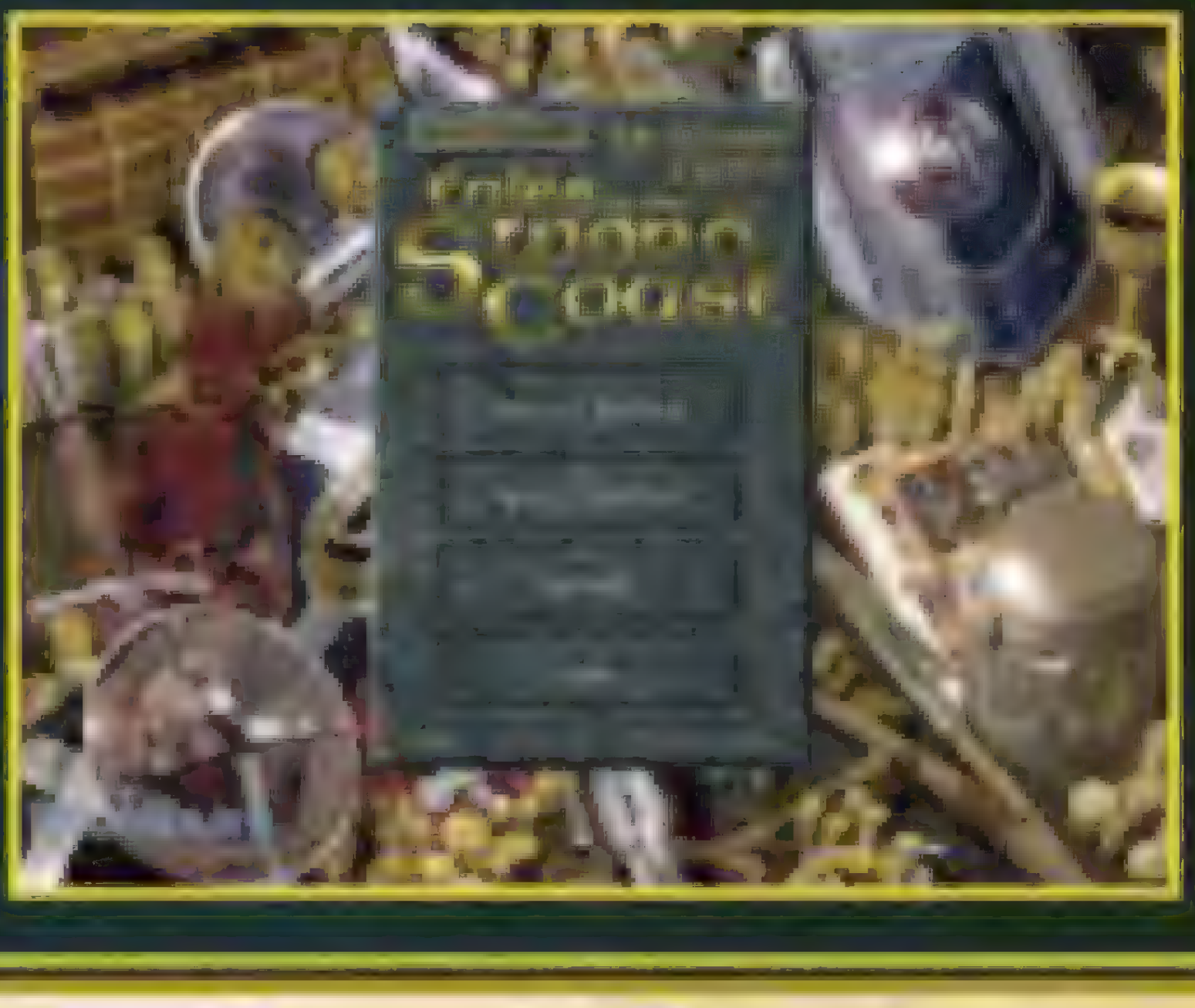
> Since everyone at BioWare was a total D&D fanboy at the time, the team jumped on the chance

» [PC] Books provided detailed history and *Forgotten Realms* lore.

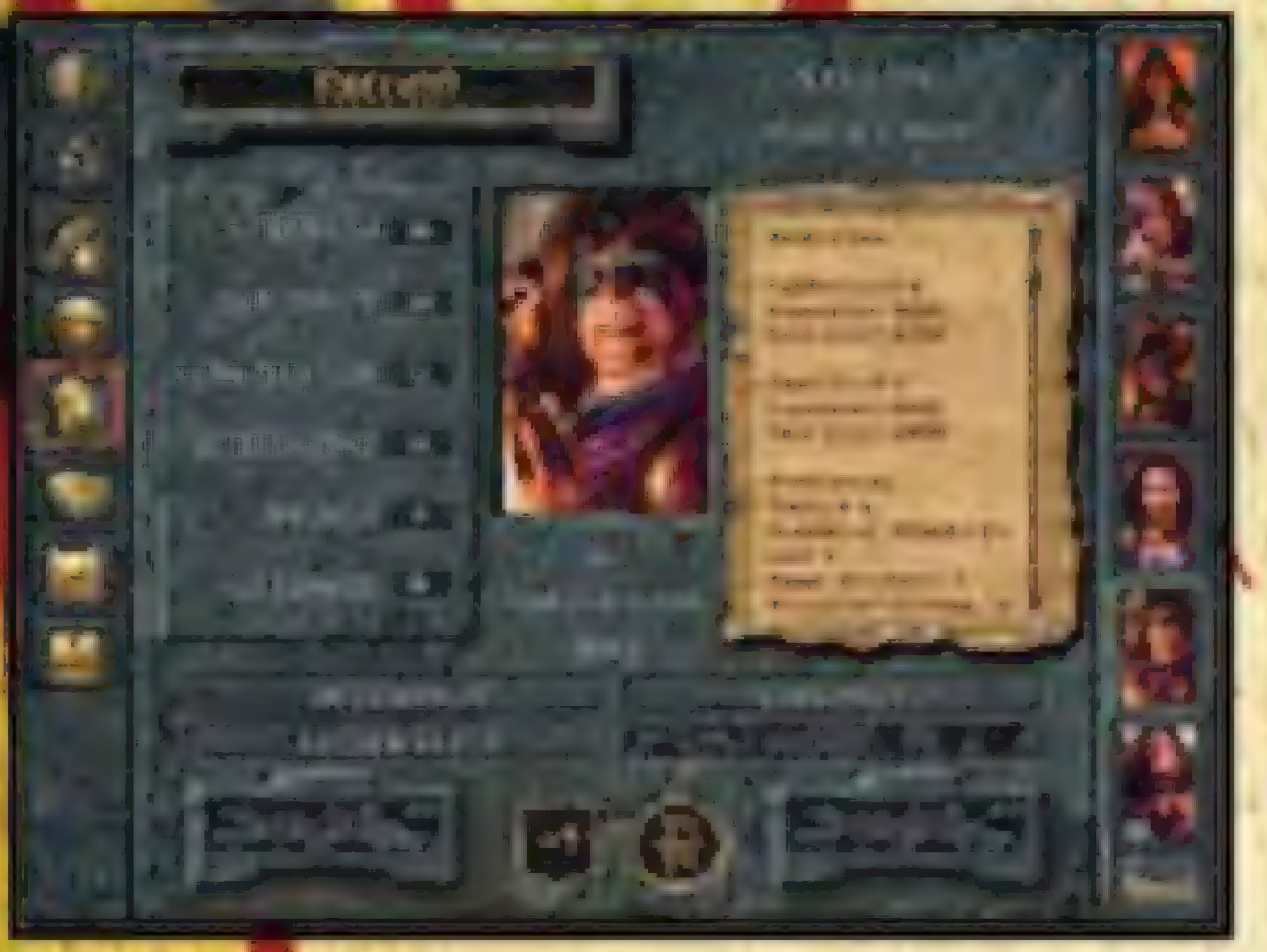
» [PC] Party banter added depth and drove subplots along.

PLAY IT AGAIN, EVEN BETTER

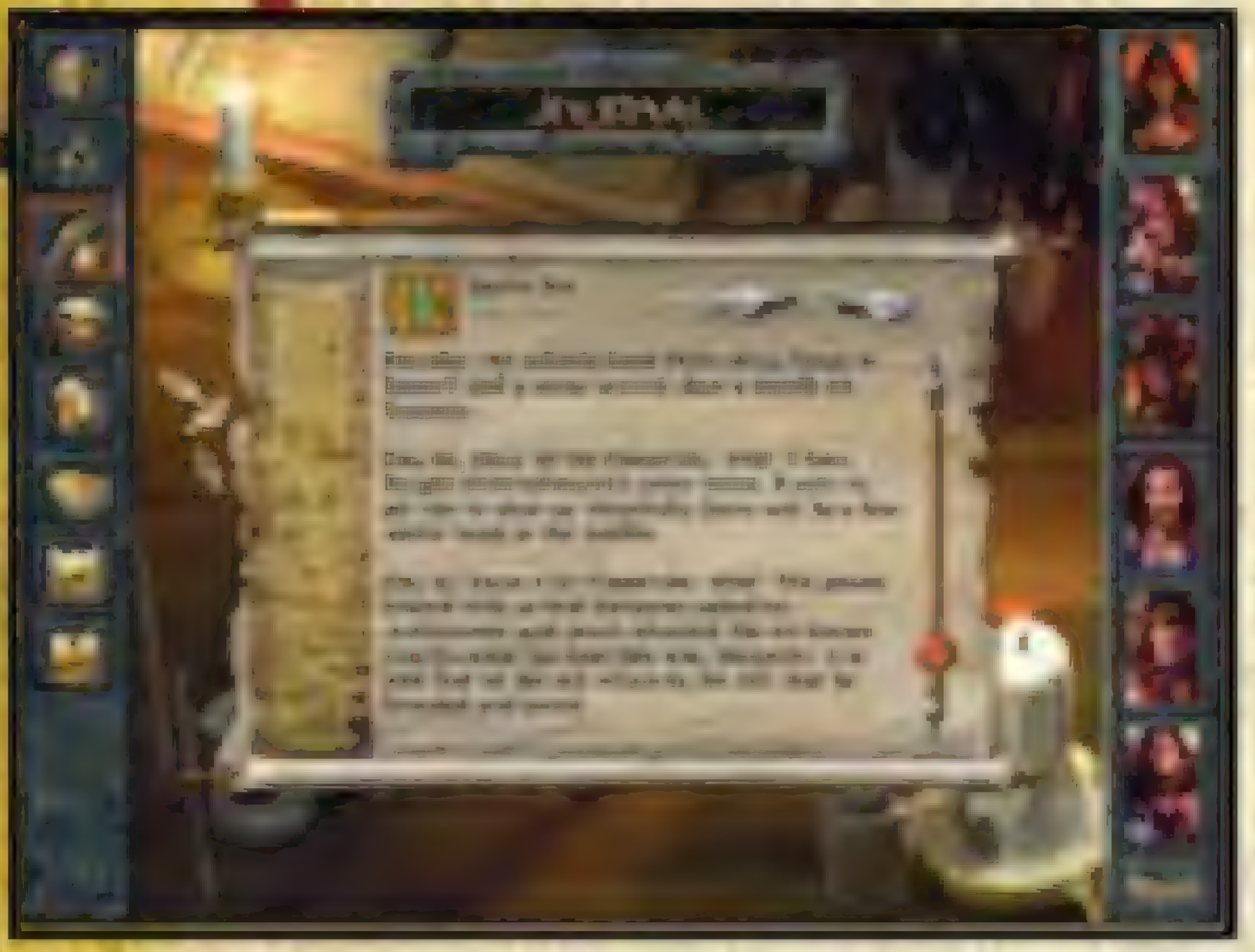
BALDUR'S GATE: ENHANCED Edition is now in the finishing stages of development and will offer fans new characters, locations, quests and over 400 improvements to the original. Many of *Baldur's Gate II*'s features are being retrofitted, including minor but noteworthy touches such as increased character movement speed and the game no longer pausing when viewing the map, plus all the class kits and subraces that were not playable in the original. "*Baldur's Gate* was an epic story told with amazing characters and it still plays well 14 years on," says Trent Oster, who is heading up the project. "With our work we've tried to improve on the rough edges and polish to let the core work really shine through. I'm happy to say we are getting very close to having a truly great game experience." *Baldur's Gate: Enhanced Edition* launches on 30 November for PC, Mac and iPad with an Android release also in the pipeline.



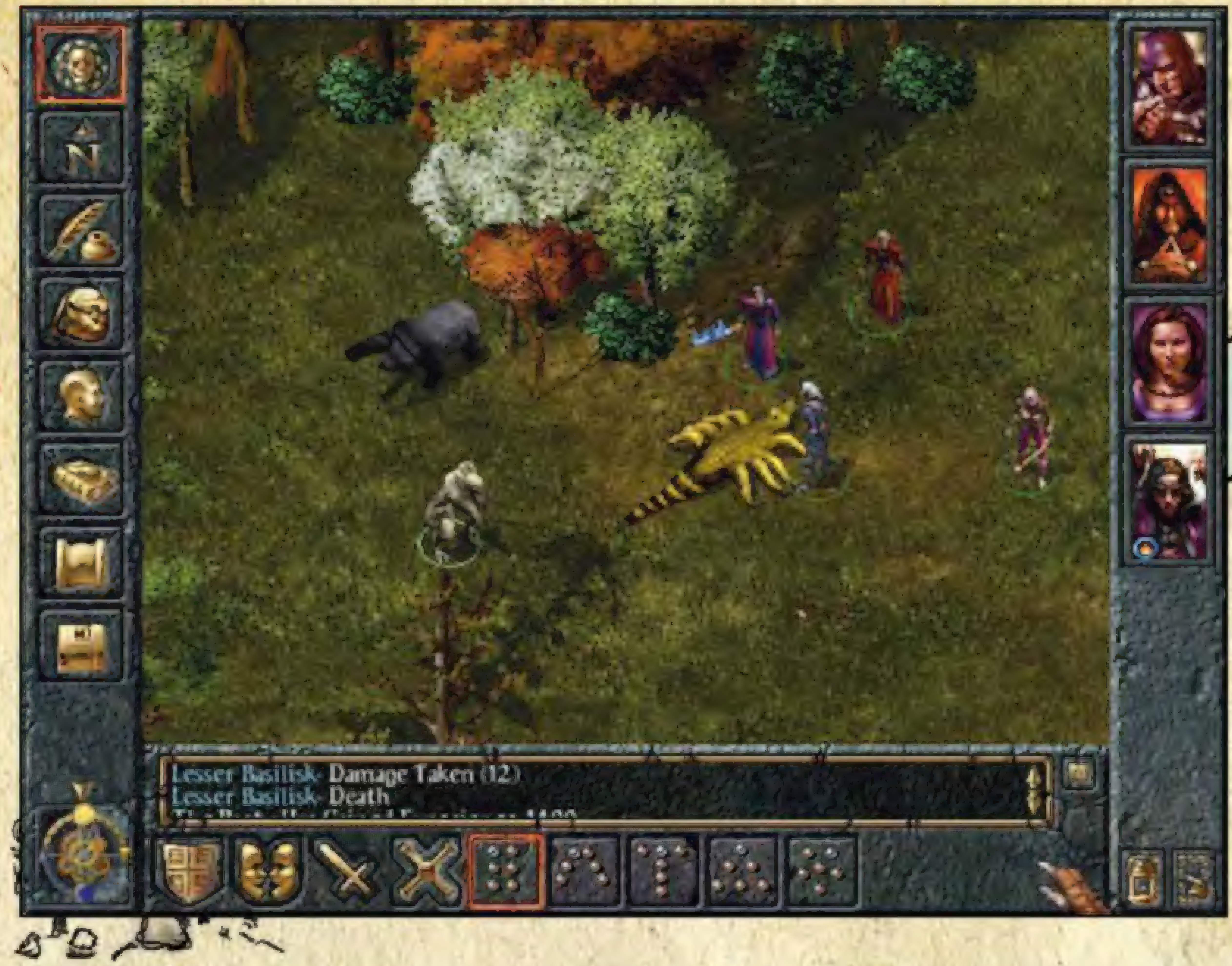
THE MAKING OF



» **[PC]** Oh Coran, you and your comically high Dexterity…



» **[PC]** Absolutely essential for keeping track of the quests on offer.



Lesser Basilisk- Damage Taken (12)
Lesser Basilisk- Death

go on to drive the likes of *Planescape: Torment* and the *Icewind Dale* series.

Yet despite all its outstanding achievements, this experimenting with new features in the engine while at the same time designing a sprawling fantasy epic saw development time stretch considerably, taking two and a half years to complete. "The game went way over schedule," says James, "but in the end it was all worth it. We were definitely not satisfied, but whoever is in game development? All of the things we weren't able to do in *Baldur's Gate*, we decided to put into *Baldur's Gate II*."

Despite the fact that the game has some shortcomings when held next to its sequel, particularly in the way of a number of relatively sparse and underdeveloped locations, BioWare had nevertheless crafted such a rich and engrossing world that players found themselves exploring every nook and cranny, pursuing every sub-quest, and striking up conversations with any NPC with a unique name or an unfamiliar look to them.

Further depth was added to the game through cameos from the likes of Elminster and Drizzt Do'Urden, drawing upon *Forgotten Realms* lore and history to appeal to fans familiar with the campaign setting. Indeed, as any who have been sucked into it will attest, *Baldur's Gate* grew into a game of total immersion, of throwing yourself into the Forgotten Realms, of placing yourself in this alternate reality from the moment you fired it up until the time you managed to end a session ("Are you sure you want to quit? Boo will miss you!").

Given that not everything from the abundance of source material on hand could be included, the team found they needed to impose restrictions on what monsters appeared in the game. "We used three guidelines," says James. "We wanted monsters that fans most wanted to see. We wanted monsters that worked for level 1 to 7 characters. And we couldn't use monsters that didn't exist on the Sword Coast."

These proved only minor limitations as the game ended up being filled with an array of popular and familiar creatures, plus a few lesser-known enemies from the *D&D* canon. However, there were more challenging restrictions coming from *D&D* owners TSR.

"TSR's Code of Ethics was somewhat limiting and forced us to often boil everything evil down into simply 'being greedy'", says Chris. "This one dimensional portrayal of evil was limiting but wasn't something that prevented the team from accomplishing its larger goals for the content in the game. We were still able to tell the story we wanted to tell, we still allowed you to be as greedy or psychotic as you liked while you were playing, there just weren't as many ramifications to being evil, or as many avenues to it, as we would have liked."

Sure enough, this limited freedom to flesh out the 'evil' side of the game saw most quests and indeed the core plot playing out much better for good or neutral aligned characters. But while this aspect of the game was criticised by a handful of hardcore roleplayers, the finished product was hardly tarnished

DEVELOPER HIGHLIGHTS

NEVERWINTER NIGHTS
SYSTEM: PC, MAC
YEAR: 2002

STAR WARS: KNIGHTS OF THE OLD REPUBLIC
SYSTEM: PC, MAC
YEAR: 2003

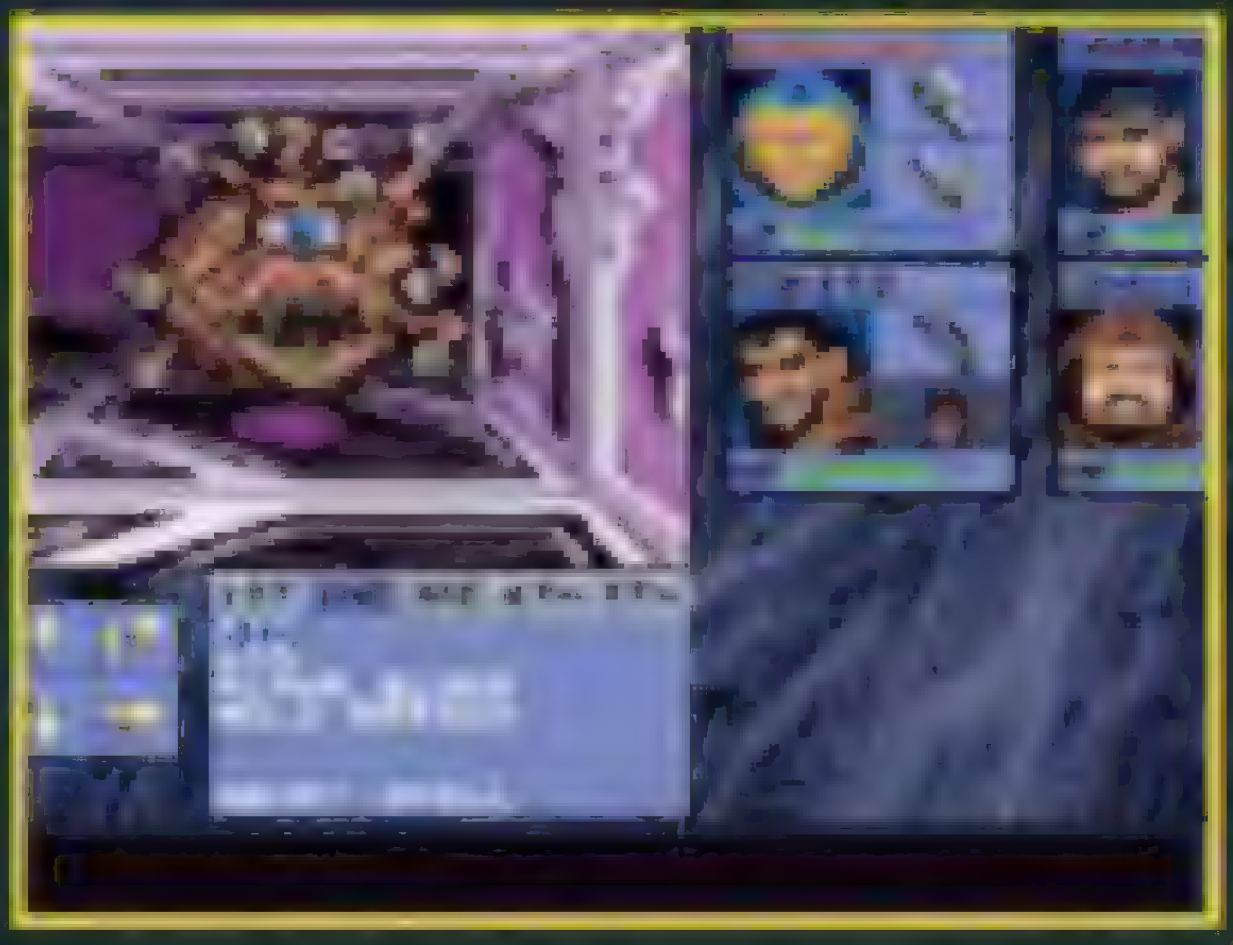
MASS EFFECT
SYSTEM: PC, MAC
YEAR: 2007

> We allowed you to be as greedy or psychotic as you liked while you were playing, there just weren't as many avenues to it as we would have liked

BROTHERS IN AMNS: OTHER GAMES SET IN THE FORGOTTEN REALMS

Pool Of Radiance 1988

The original gold box adventure and as crucial to computer role-playing as Mario is to platformers, *POR* sent you to the curiously named city of Phlan as a party of wet-behind the-ears adventurers. Combining first-person exploration with isometric tactical combat, this was a brilliant and legacy-spawning original *Dungeons & Dragons* epic. A critical hit, some might say (groan).



Eye Of The Beholder 1991

Descending into the sewers beneath Waterdeep with a four-person party (and room for two NPCs picked up along the way), *Eye Of The Beholder* was a first-person dungeon-crawling spectacular. Some devilish puzzles, orientation trickery and god forbid you ask where the automapping feature is. A challenging, beautiful and deeply engrossing classic.

Treasures Of The Savage Frontier 1992

The final Gold Box *Forgotten Realms* adventure, *Treasures* was an epic swan song that showed off how much the series had managed to mature since the release of *Pool Of Radiance*. More character options, high-level spells, romances, and varied locations with their own sub-quests within a large world to explore.

Unlimited Adventures 1993

With this full-featured RPG making toolkit, SSI unleashed all one needed to make their own Gold Box adventures. If you'd played through all the originals and still wanted to roll virtual 20s and sweep through a horde of kobolds, this was all you'd need. And it's still alive today with its spiritual successor, the open source *Dungeon Craft*, available on SourceForge.

Icewind Dale II 2002

This was the final Infinity Engine game and, like its predecessor before it, swayed heavier towards combat and tactics than the *Baldur's Gate* series' emphasis on characters and storyline. Its use of *D&D*'s Third Edition ruleset meant new races and classes as well as more spells and enemies, and it sported beautiful graphics and one of videogaming's greatest ever soundtracks.

» **[PC]** Might you know the way to the Friendly Arm inn?

by it, and the critical and popular success of *Baldur's Gate* proved this.

It garnered rave reviews, sold millions of copies and won RPG and Game of the Year awards around the world – not bad for BioWare's first role-playing game and second ever title. Even more impressive when you consider that many of the team had never published a videogame before.

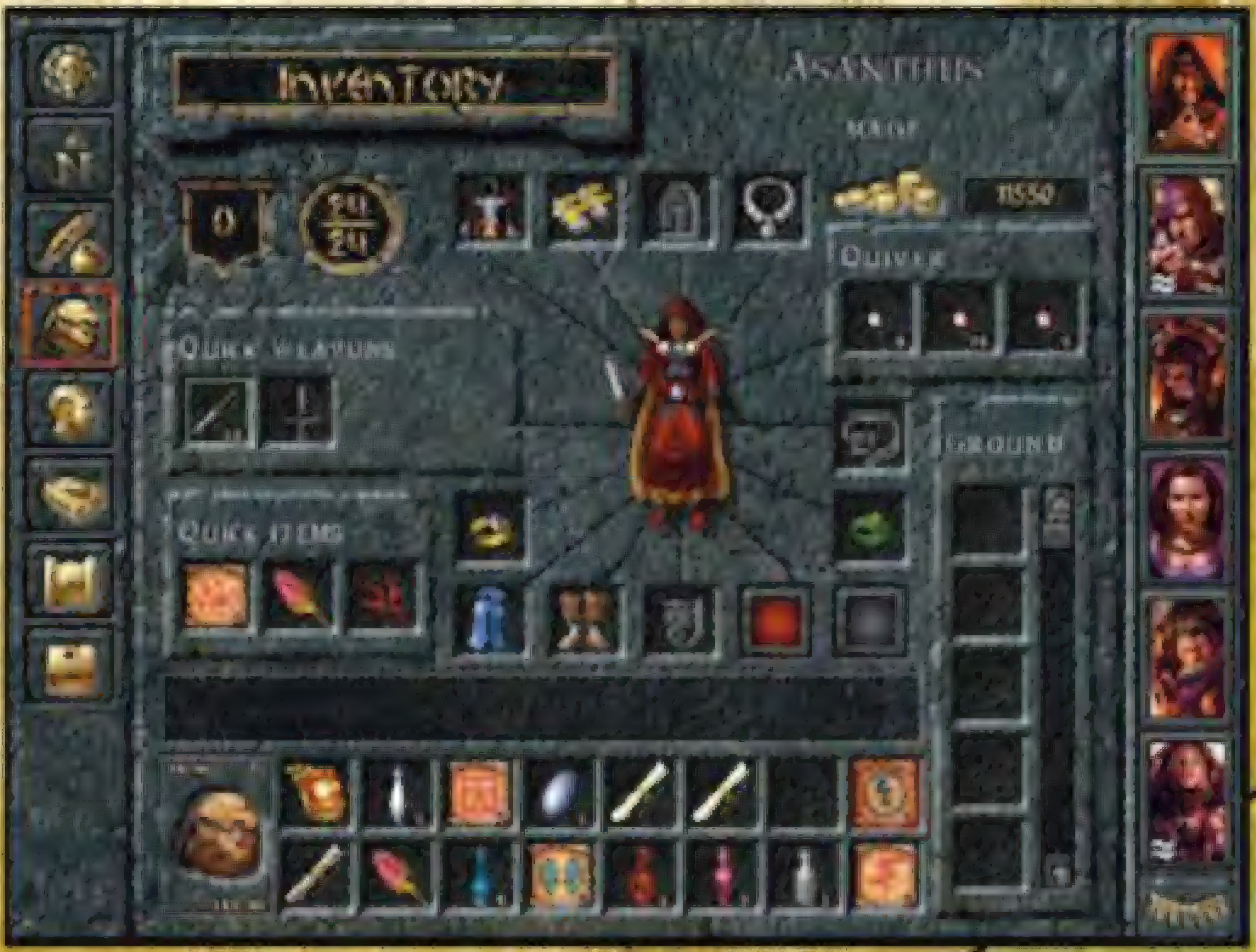
"As the team was finishing up the product I think everybody knew it was going to be successful," recalls Chris. "It was generating an immense amount of press and forum buzz and wherever we showed it people told us they couldn't wait to play the game. I don't think anybody at BioWare or Black Isle Studios understood the extent to which the game would be successful. Personally, I was hoping the game would exceed a half million units, which would be hugely successful for a PC game at that time, but it did something like four times that in its first year and continues to sell today. I attribute that success to an unbelievably devoted, hard-working team that wanted to make a game with a huge depth of high-quality content that was easy and fun to play. Although it was probably the most difficult product I've had to finish, it has been among the most rewarding."

Baldur's Gate's undeniable quality, lasting appeal and dedicated fanbase has seen it enter into that elite group of games that have been immortalised by a massive online following who regularly release mods, content packs, resolution patches and other tweaks to the core game. It is now 16 years since it was first released and people are still talking about it, replaying different character builds, and showing enough interest to justify Trent and his team at Overhaul Games to produce an *Enhanced Edition* remake (see boxout).

"I think *Baldur's Gate* still resonates with people because it single-handedly re-invigorated the western RPG," he says. "At a time when most publishers refused to fund any RPG games, believing the genre dead, BioWare was able to take the time to lovingly craft a great game in a loved setting. The combination of technology, love of the rules system and a deep knowledge of the lore allowed the team to create something fantastic. I feel since then as an industry we've been a little blinded by technology and lost some appreciation of the telling of a wonderful story."

Baldur's Gate: Enhanced Edition's imminent release, the popularity of the titles on GOG.com and the success of the *Project Eternity* kickstarter have all proven that the isometric RPG, while born in the late Nineties and dormant for close on a decade, is a genre far from lost to the past.

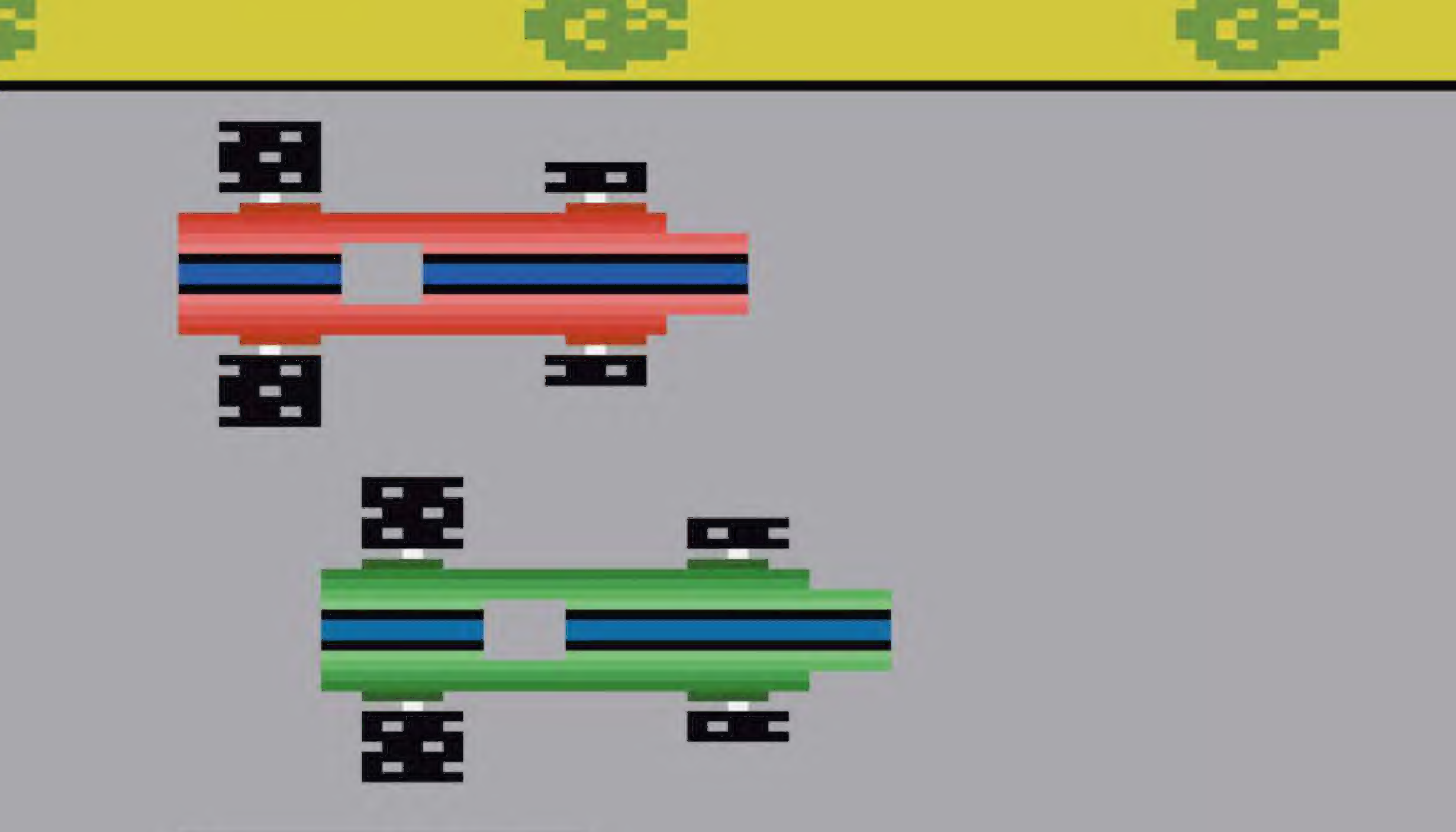
> It is now 16 years since it was first released, and people are still talking about it



» **[PC]** Managing your inventory was essential if you wanted to survive for any length of time.

» **[PC]** A raided caravan mentioned earlier adds to the immersion.

» **[PC]** Your hotel's as clean as what??



» RETROREVIVAL

Grand Prix

FORMULA 1 HAS NEVER BEEN SO MUCH FUN

- » ATARI 2600
- » ACTIVISION
- » 1982

Play *Grand Prix* today and it remains as thrilling as it did in 1982. Not a bad achievement for a game that is now over three decades old.

Of course the main secret to *Grand Prix*'s success was its talented designer David Crane, who, fresh from co-forming Activision, was trying all sorts of crazy programming tricks to push the Atari 2600 and subsequently his new racing game, as far as possible. David kindly gave us a full account of his impressive achievements in **Retro Gamer** issue 100, but suffice to say even seemingly innocuous things like animating tyres or modifying the cars of opponents when they moved off screen proved to be a tremendous challenge for the talented programmer.

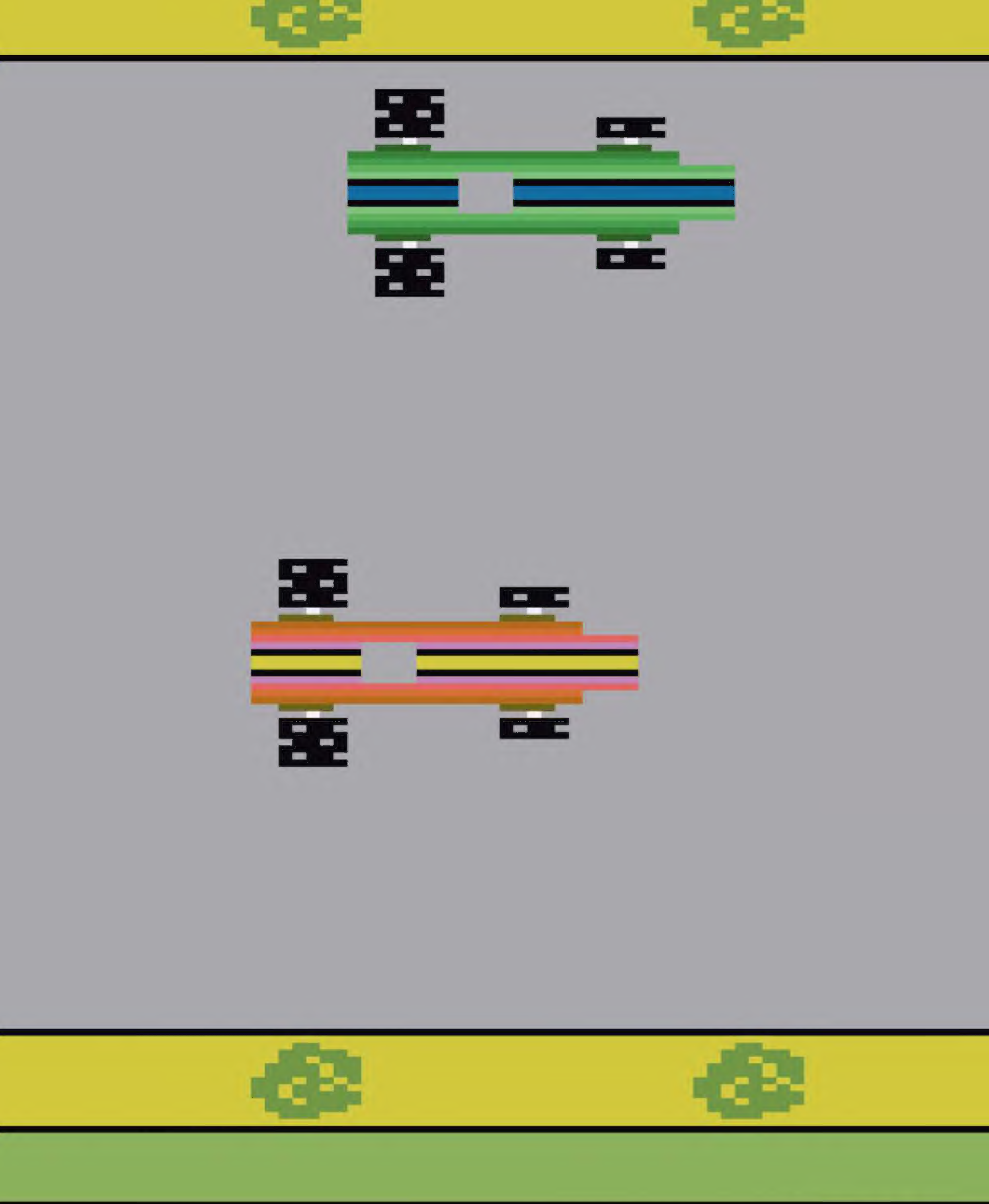
David was more than up to the task, though, and the end result is a truly excellent thrill ride, which tests your reactions to the limit and is still a joy to play today. In *Grand Prix* your only opponent (not including the numerous cars you continually race past) is time itself. You need to reach the finish line as quickly as possible, while avoiding incoming traffic, which gets faster and denser as you build up speed. Throw in the occasional oil spill that will slide you temporarily off course, and *Grand Prix* becomes incredibly addictive fun.

It's a tremendously satisfying game to play as well thanks to its finely honed controls that leave very little for anything other than human error. You'll constantly chastise yourself for clumsily driving into a patch of incoming traffic due to your own inept driving, but you'll nevertheless start all over again once you reach *Grand Prix*'s finish line and see how poor your final time is. That's how much of a hold David's game has on you.

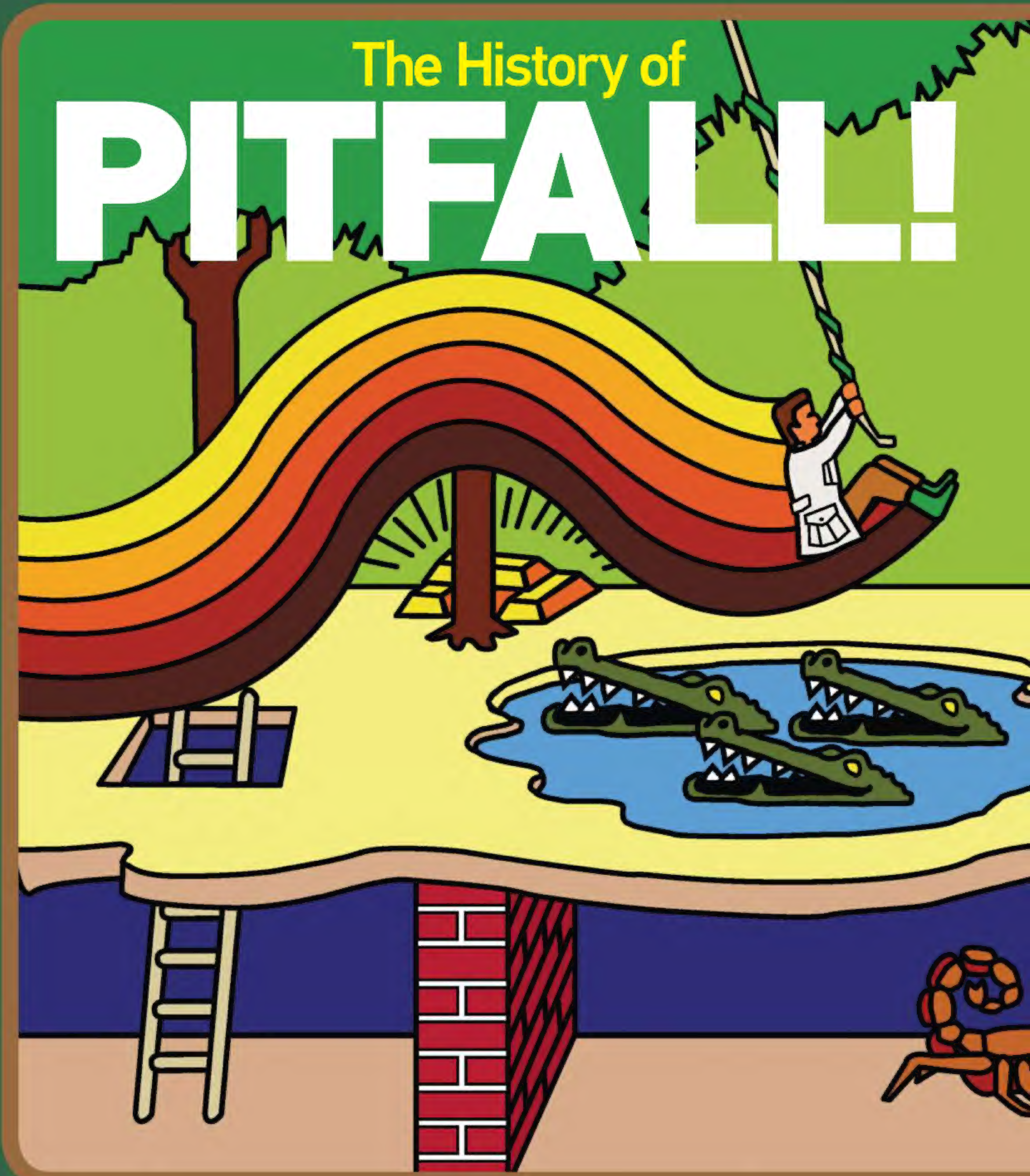
Grand Prix's difficulty is set across four courses: Watkin's Glen, Brand's Hatch, LeMans and Monaco. Oil spills and cars become more frequent, while later courses introduce bridges, which force you to traverse a narrow section barely wider than your vehicle for a precious few milliseconds.

Do not be fooled by *Grand Prix*'s chunky aesthetics. It's an absolutely mesmerising beauty in motion and proves that the simplest gaming concepts are always the best.

0:31.31
ACTIVISION
1



The History of
PITFALL!



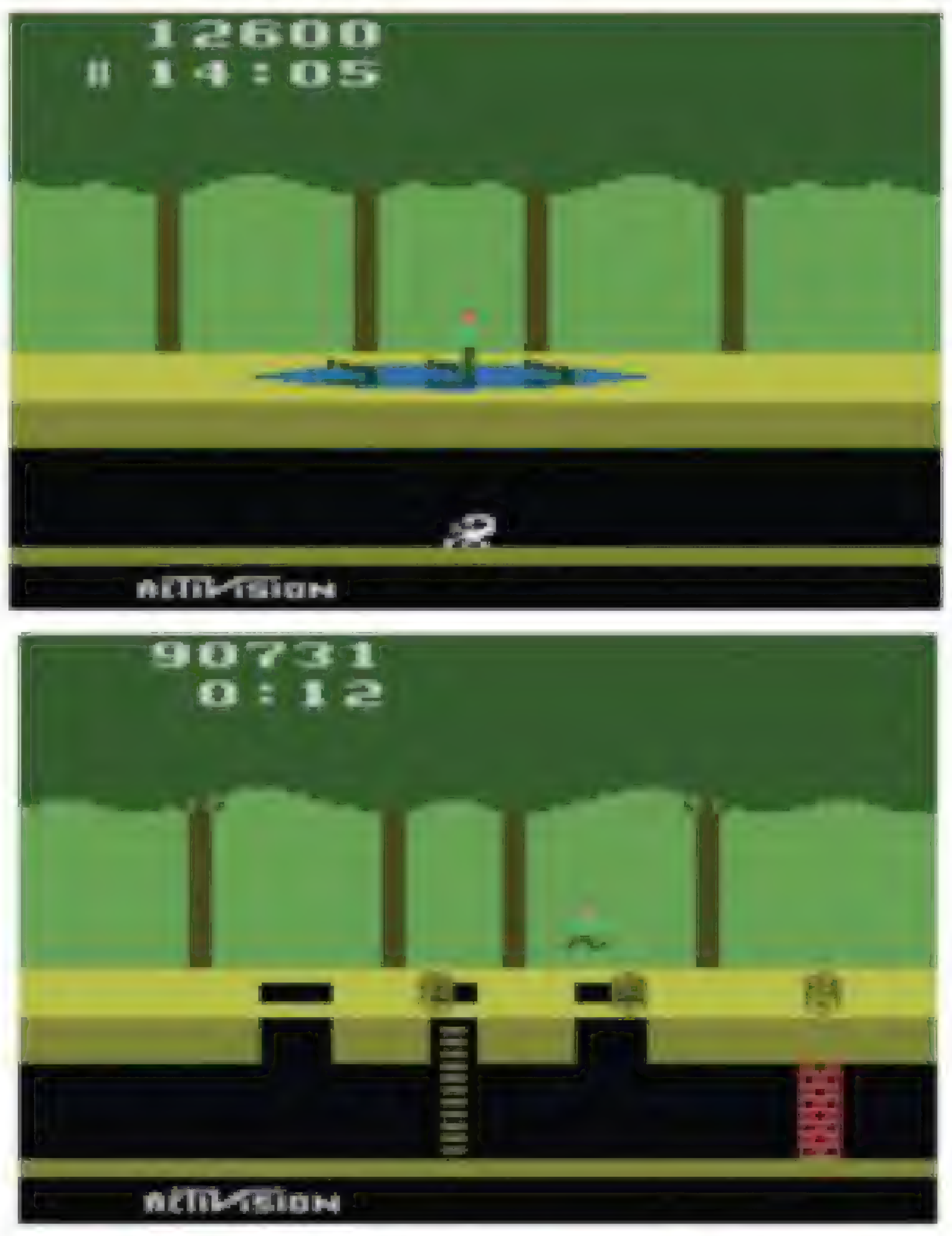
Forget about Nathan Drake and Lara Croft, gaming's first true adventurer swung onto our screens 30 years ago this year. To celebrate the release of Pitfall Harry's recent iOS adventure, We speak to David Crane about the life and escapades of Activision's iconic adventurer

The videogame character serves as a tidy barometer to show how far videogame visuals have come. With their looks and designs dictated by technology, early characters were simple abstract shapes, requiring a bit of imagination to fully bring them to life. But as technology moved forward, so developers started to think more ambitiously about their creations.

It was around the mid-Seventies that the earliest human-looking characters started to appear and predictably debut in arcade sports titles. 1974 saw the release of *Baseball* by Ramtek Corporation, *Basketball* by Taito, *Ball Park* (another baseball game) and *TV Basketball* by Midway.

The following year they began appearing in games away from sport. 1975 saw the release of Atari's infamous unlicensed *Jaws*-inspired arcade game *Shark Jaws*, in which players helped a harassed diver catch fish while avoiding the jaws of a great white shark, and Taito's *Western Gun* (*Gun Fight* outside of Japan), a Wild West versus shooter that played like a flipped version of *Pong* (you have to avoid getting hit) and is notable for being the first videogame to depict human-on-human violence.

Perhaps the next significant step to happen in this evolutionary chart was taken by Mattel, with its Intellivision 'running man' character. Used as a mascot for its console, the running man appeared in many of the machine's sports titles and was impressive with his realistic movements.



» [Atari 2600] The original *Pitfall!* was a massive success for Activision, spawning numerous sequels and an animated show.

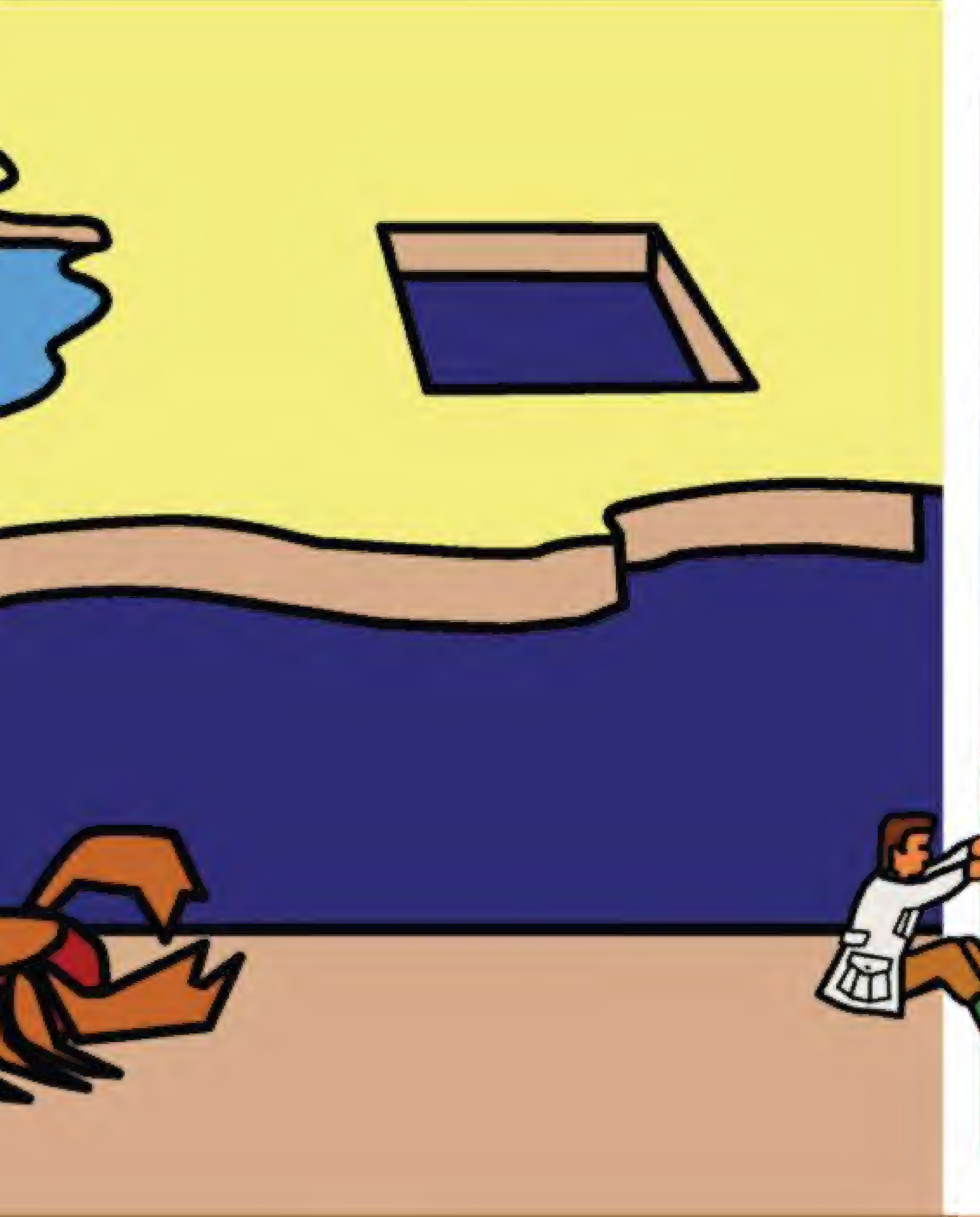
But it was in 1979, the same year the Intellivision was being test-marketed in North America, that Activision co-founder David Crane finished creating a realistic-looking running man of his own, one that would take one giant leap for virtual mankind. There was a problem, though. David was struggling to come up with a compelling game to cast him in. After all, if you create a racing car or a spaceship then the possible game scenarios practically write themselves. Create a human character however, and the possibilities become pretty much limitless.

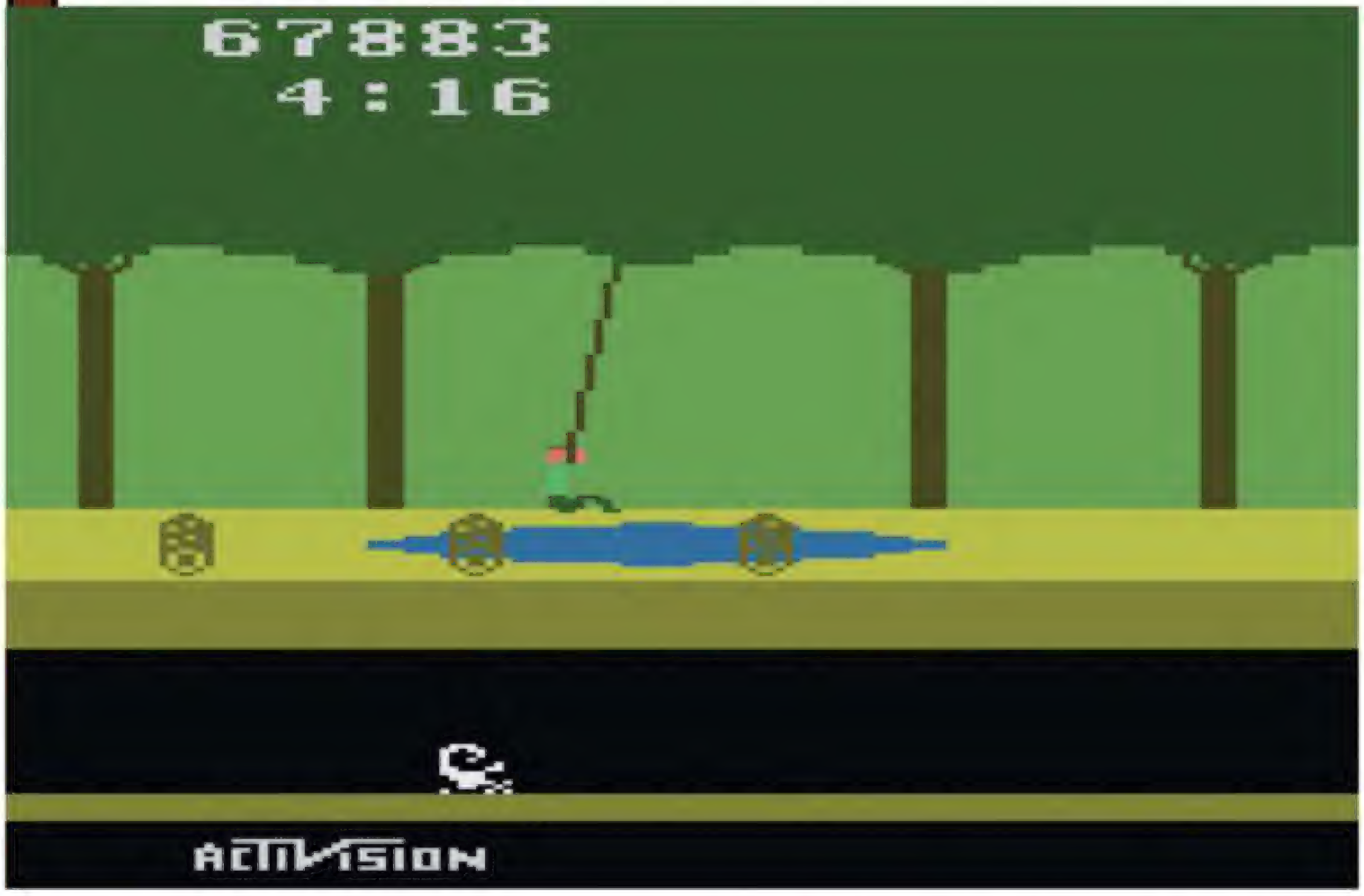
"The closest I came was a *Cops And Robbers* game, which was never published," recalls David. "I used an alternating black and white, horizontal stripe colour scheme on the character to create a running convict (the same scheme I slipped into Larry Kaplan's *Kaboom!* for the mad bomber). I made a side-view screen-to-screen cityscape that was actually the technical predecessor to *Pitfall!*'s jungle. But I wasn't excited about the gameplay, and when I was inspired to make *Freeway* I put the little guy on the shelf. After *Freeway* I brought the guy back out, but got

DAVID ON…

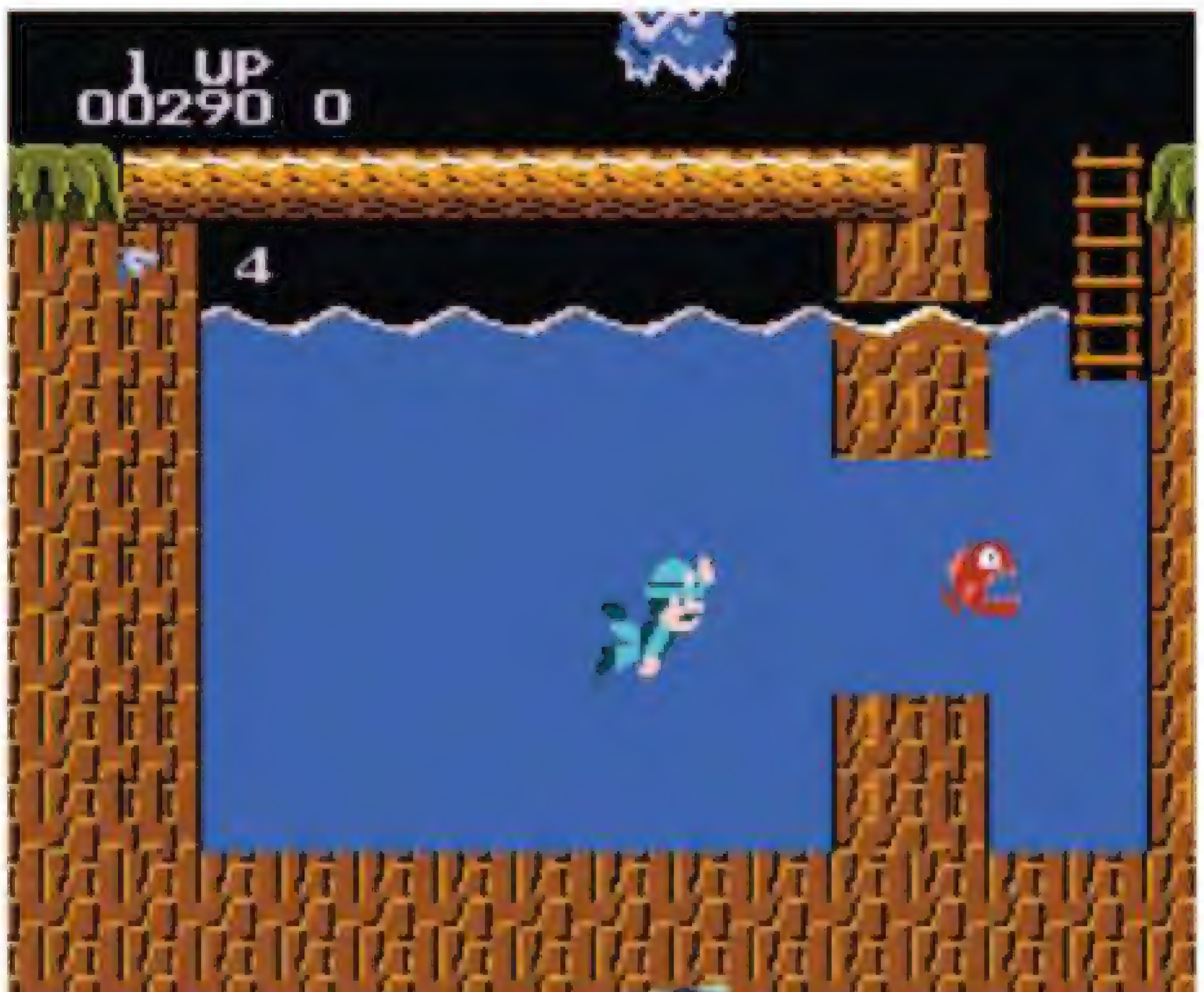
Why Harry is called Harry

"The name Harry meant nothing other than the fact that it rolled off the tongue nicely. And he wasn't officially named Harry during development, it was just his nickname and it stuck."





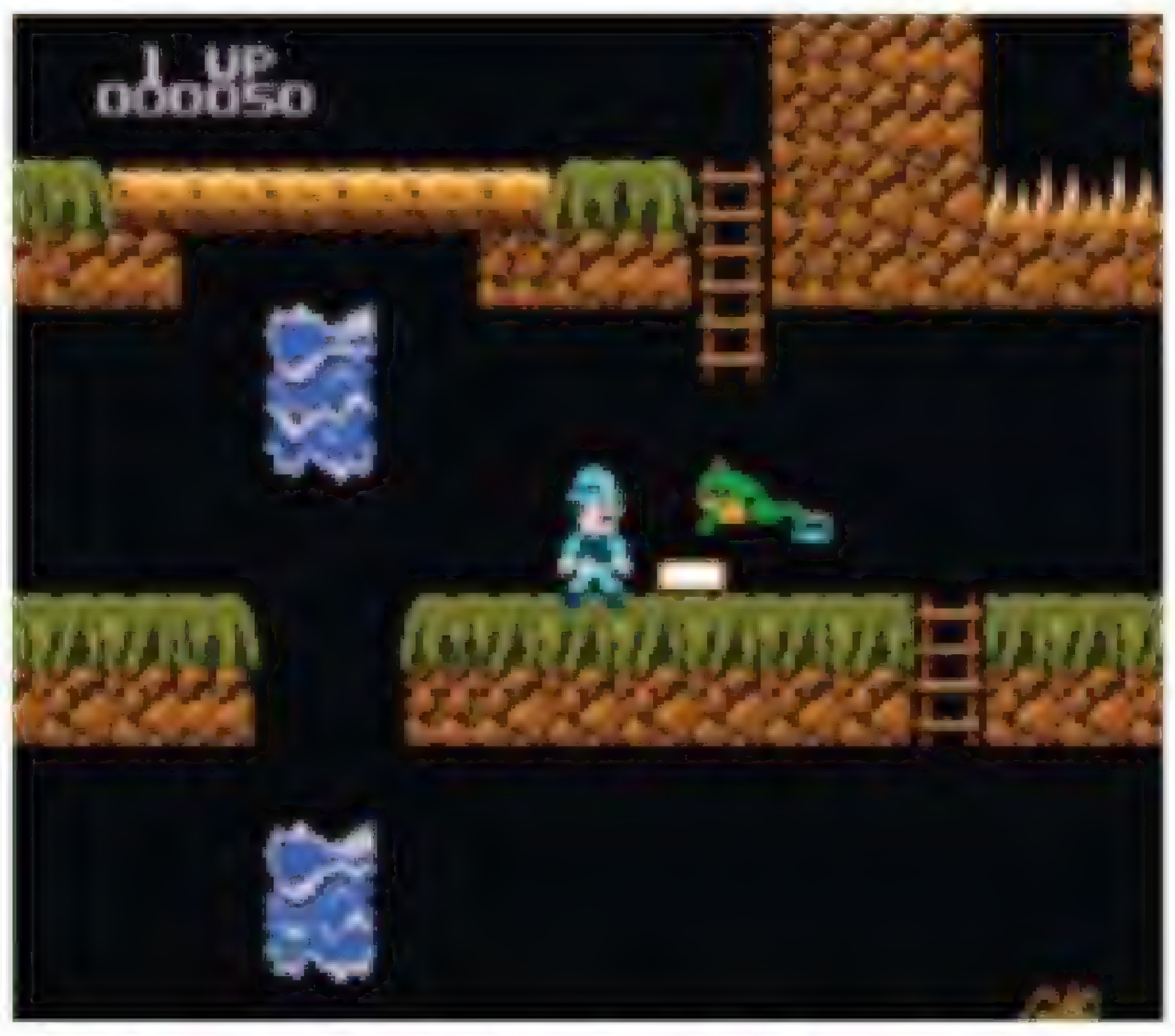
» [Atari 2600] We'll never forget the first time we swung on a rope in *Pitfall!* It's become a hallmark of the series ever since and still works extremely well as a gameplay mechanic.



intrigued by the technical challenge of making large racing cars on the 2600, and *Grand Prix* was born. Only after that did I decide to stick with the little running man until I had a great game to put him in."

It was then that David sat down with a blank piece of paper and began sketching out a rough outline for the game concept that ultimately became *Pitfall!*. He began by drawing his little running man, and then, struck with the idea of a jungle surrounding, added in some trees. A few minutes later and David had a concept that he was finally satisfied with. Of course the next – and hardest – challenge was getting it all into the Atari 2600.

"The hardware limitations of the Atari 2600 dictated everything. Every frame of Harry's animation had to fit in an 8 pixel wide by 16 half-pixel tall space," explains David. "If I got tricky, I could change the colour of each row of pixels, but no two pixels in the same row could be different colours. The ROM was very limited, and each animation required many animation frames. So if Harry had to run, jump, climb, and swing, he could take up a significant portion of the available ROM. "But none of those problems were the worst. After creating a smoothly-animated human figure for the first time in a videogame, I had to then make a compelling game. The main character used up a significant portion of the Atari 2600's display capability, so the question I had to answer was 'How do I make a game with what is left?'"



» [NES] The worst it got for Harry. *Super Pitfall* is anything but its adjective, suffering from shonky gameplay and rubbish visuals.

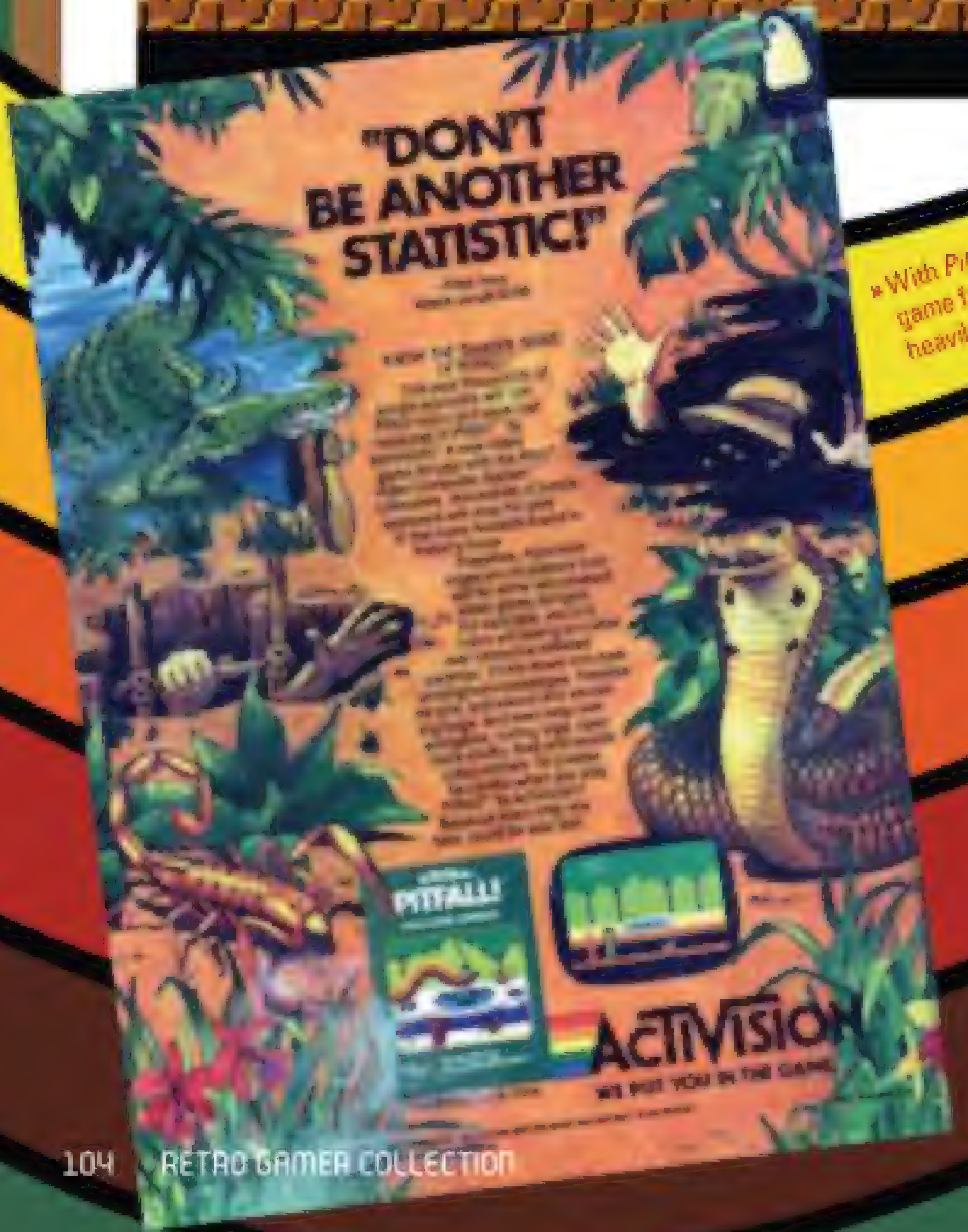
Though the jungle concept took David minutes to think up (if you discount the time spent thinking up those unused scenarios), the programming side of *Pitfall!* was anything but quick, clocking in at an astonishing 1000 hours. David explains that elements of *Pitfall!* took inspiration from three main sources. The vine swinging was naturally inspired by Edgar Rice Burroughs' *Tarzan*. The crocodile sections were from a sequence in the US cartoon *Heckle And Jeckle* that saw its two magpie characters running across the heads of alligators, and the biggie was *Raiders Of The Lost Ark*, which was showing in theatres at the time and generating a buzz. As well as Indy's first adventure, 1981 also marked the release of *Donkey Kong* in North America. A landmark arcade game starring a running man in a scenario that aped a popular movie, it was hugely successful and put both Nintendo and the platformer on the map.

"I was single and living in a large apartment complex that had a small arcade in the

DAVID ON...

Harry becoming a company mascot for Activision

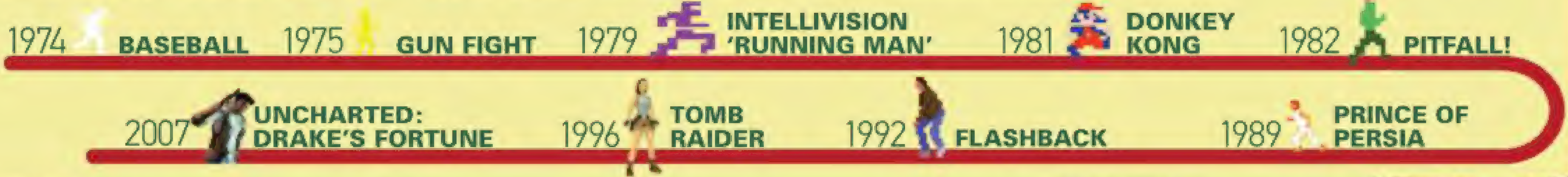
"I never thought of making him the company mascot (although Nintendo did quite nicely doing that with Mario). And after just one sequel I was happy to move on to other ideas."


"DON'T BE ANOTHER STATISTIC!"
PITFALL!
ACTIVISION
WE PUT YOU IN THE GAME

» With *Pitfall!* being such an important game for Activision at the time, it was heavily advertised in numerous magazines.

EVOLUTIONARY SCALE

We chart the evolution of human characters in videogames



1974 **BASEBALL**
1975 **GUN FIGHT**
1979 **INTELLIVISION 'RUNNING MAN'**
1981 **DONKEY KONG**
1982 **PITFALL!**
1989 **PRINCE OF PERSIA**
1992 **FLASHBACK**
1996 **TOMB RAIDER**
2007 **UNCHARTED: DRAKE'S FORTUNE**

recreation building," David remembers when we ask him about his impressions of seeing *Donkey Kong* for the first time. "I played the arcade games and pinball machines many hours every week. I was well into the design of *Pitfall!* when *Donkey Kong* arrived, and as with any new addition to the arcade I played it to the exclusion of all else until I had it mastered. I didn't draw any parallels to *Pitfall!* at the time. As I have said, I considered it inevitable that human characters would end up in games; and arcade games had the computing power to do it. I already had paths and ladders in *Pitfall!*'s design, so that seemed natural to me as well. The Atari 2600 limited me to horizontal bands of game play, and forced me to go screen-to-screen. So to put it simply, I enjoyed *Donkey Kong* for the game it was, but at the time comparing the two games was like comparing apples to oranges."

In 1982, *Pitfall!* was released and astonished 2600 owners. To them it wasn't just a game, but a virtual world to run, swing and explore in. And while it wasn't the first platform game, it did pioneer and popularise the flowing screen-to-screen style that would come to dominate the genre. So given its impact, how successful was it for Activision?

"*Pitfall!* earned Activision some $50 million… Not bad for a game that cost maybe $50,000 to make," answers David. "But to be fair there were a lot of marketing dollars spent there. When a game becomes a hit, companies spend on marketing to make it a mega-hit. While it is a mega-hit, marketing dollars are spent to keep it a mega-hit. One mega-hit can propel a company to stardom and help the business in every way."

DAVID ON…

Pitfall! the motion picture

"I wasn't aware of any effort to make a *Pitfall!* film. Who knows, maybe the fact that it was made into a children's show first torpedoed any hope of a film for adults. Pitfall Harry happily stayed in the jungle."

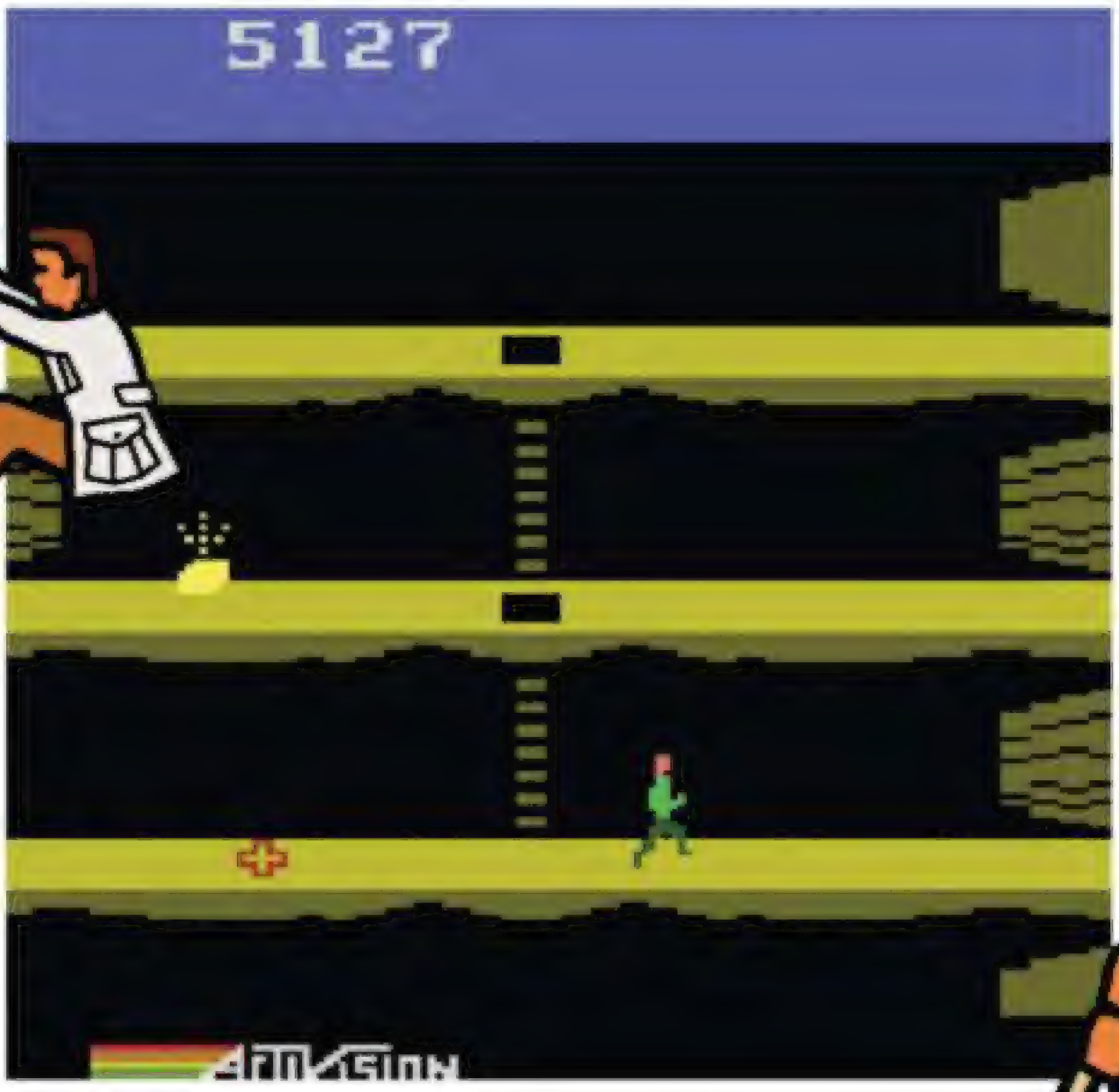
JUST WHEN YOU THOUGHT IT WAS SAFE TO GO BACK INTO THE JUNGLE.
PITFALL II
LOST CAVERNS
ACTIVISION

» This advert for Pitfall II: Lost Caverns was designed to look like a movie poster, even going so far as to list all the characters in the games in the credits.

Pitfall! was Activision's biggest ever release. It stayed at the top of the charts for many, many weeks, and the mechanising deals came flooding in. David remembers this hectic but exciting time well.

"Whole teams of people were merchandising *Pitfall!*. We had a board game, jigsaw puzzles and other licensed products. The merchandising people made a deal with Ruby Spears to produce a Saturday morning cartoon. They made a few episodes, and those aired as part of the *Supercade* with the *Pac-Man* cartoon and others. To be brutally honest, the stories were pretty bad, and the production quality low compared to what we see today. But I would still love to have prints of the original masters for my personal collection."

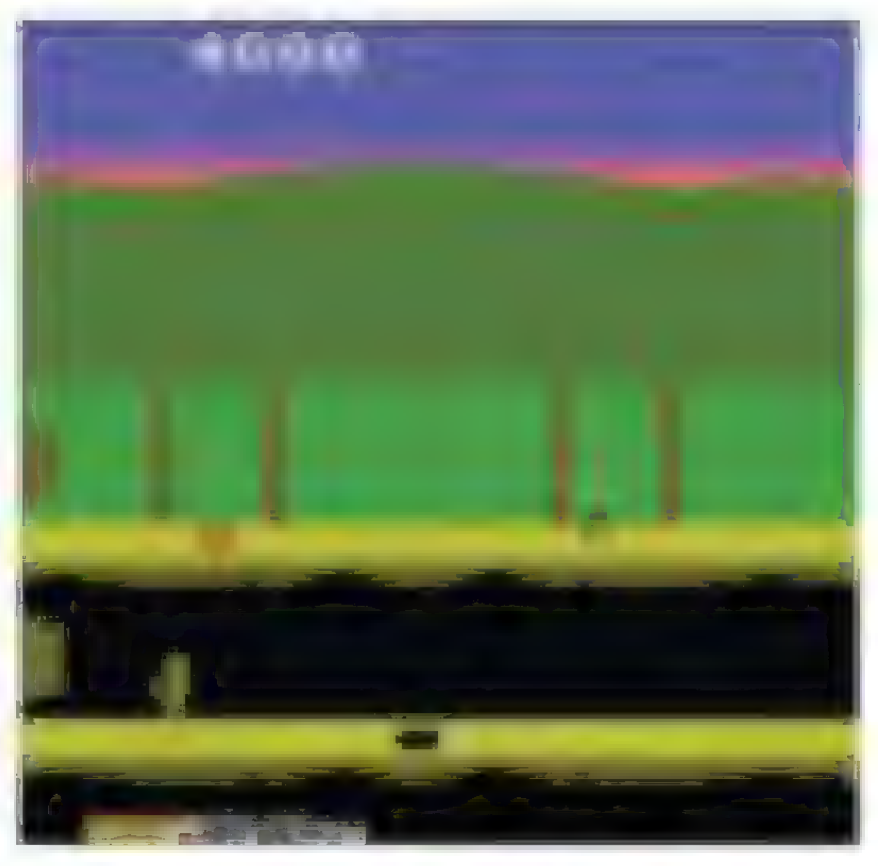
Pitfall! was also the most technically impressive 2600 game of its day too. And the belief it pushed the 2600 and its memory to its limits is supported by the development story of its 1984 sequel, *Pitfall II: Lost Caverns*. "I set out to make *Pitfall II* at a time when the Atari 2600 should have been replaced by a new gaming system," explains David. "But the old boy kept hanging on. I figured that if it was going to keep selling it needed a facelift. I designed a patented custom IC to go in the game cartridge that would expand the capabilities of the 2600 hardware. It gave the system more power and other neat features like the ability to play a full, orchestrated soundtrack. I used that chip to make *Pitfall II*. Sadly, the 2600 pretty much gave up the ghost after *Pitfall II* ran its course, and no other game was designed using that technology."



The chip inside *Pitfall II* made it one of the best-looking and sounding (it had a full music soundtrack) 2600 games ever. The visuals were a huge step up in quality, while the adventure was both larger and packed with imagination. It featured cameos from two characters from the *Pitfall Saturday Supercade* cartoon, new enemies and introduced balloon flying and swimming sections. Checkpoints were also added that would re-spawn Harry (he also now had unlimited lives) and the extra memory afforded by the chip allowed David to add a victory screen too, something he wanted to include in the original but didn't have the available space to do so.

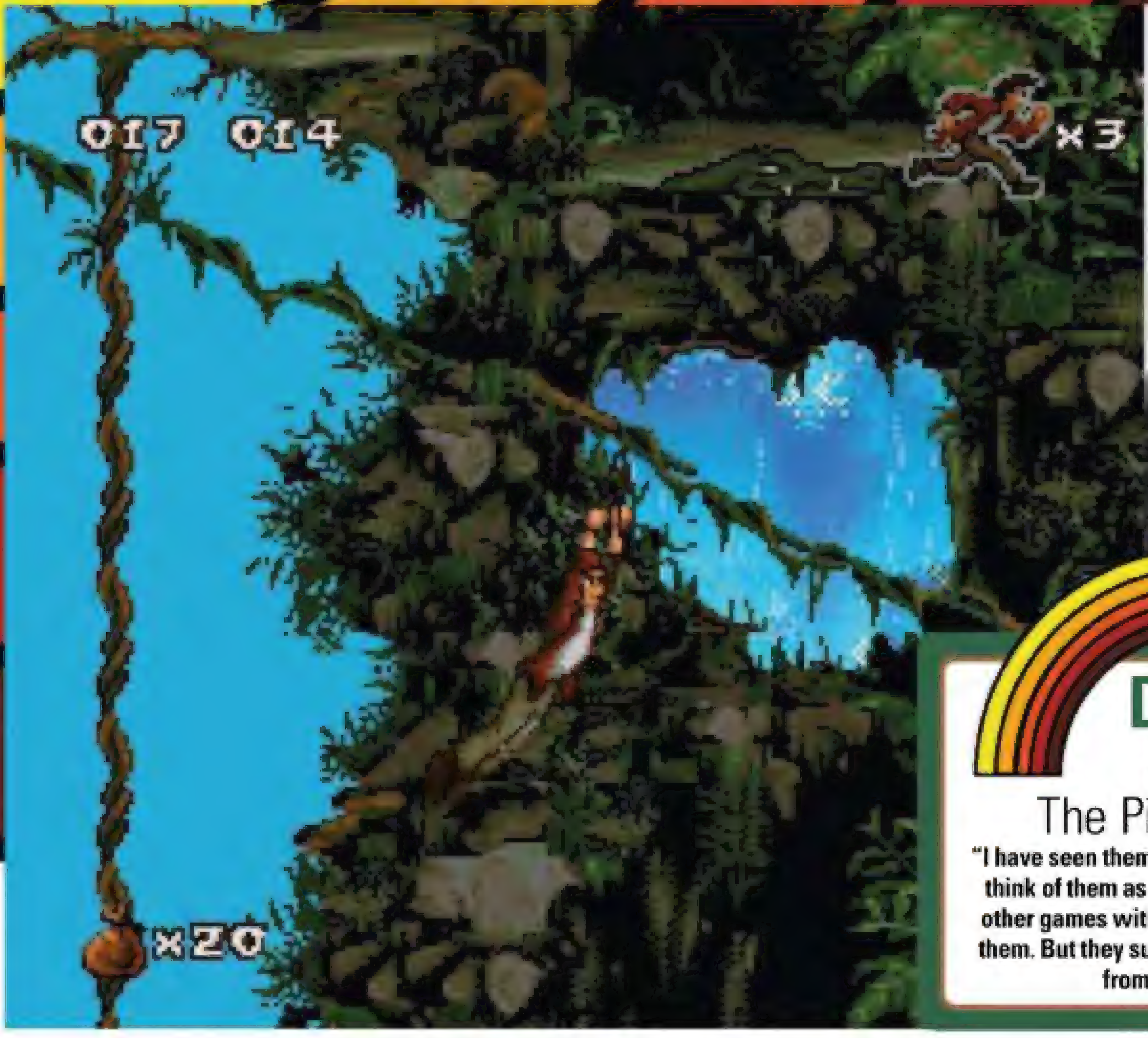
Released towards the end of the 2600's commercial life, *Lost Caverns* was another big release for Activision, but it didn't sell as well as its predecessor. Considering the large install base of the 2600, and the fact David had proven that the machine still had plenty more to give (with a little helping push), we were curious as to whether Activision ever discussed making a third game to make a 2600 trilogy? It's a question that we're certain David gets asked more than any other by fans, but we're sure he won't mind humouring us this one time.

"I stayed at Activision until 1987. Many times the subject of *Pitfall III* came up, and



» [Atari 2600] *Pitfall II* built on the original in fine fashion. It had better graphics and more variety in its gameplay, including impressive swimming sections.

» [Arcade] Sega's *Pitfall II* arcade game is a neat *Pitfall* curio. It plays like *Pitfall!* but looks more like *Alex Kidd*.

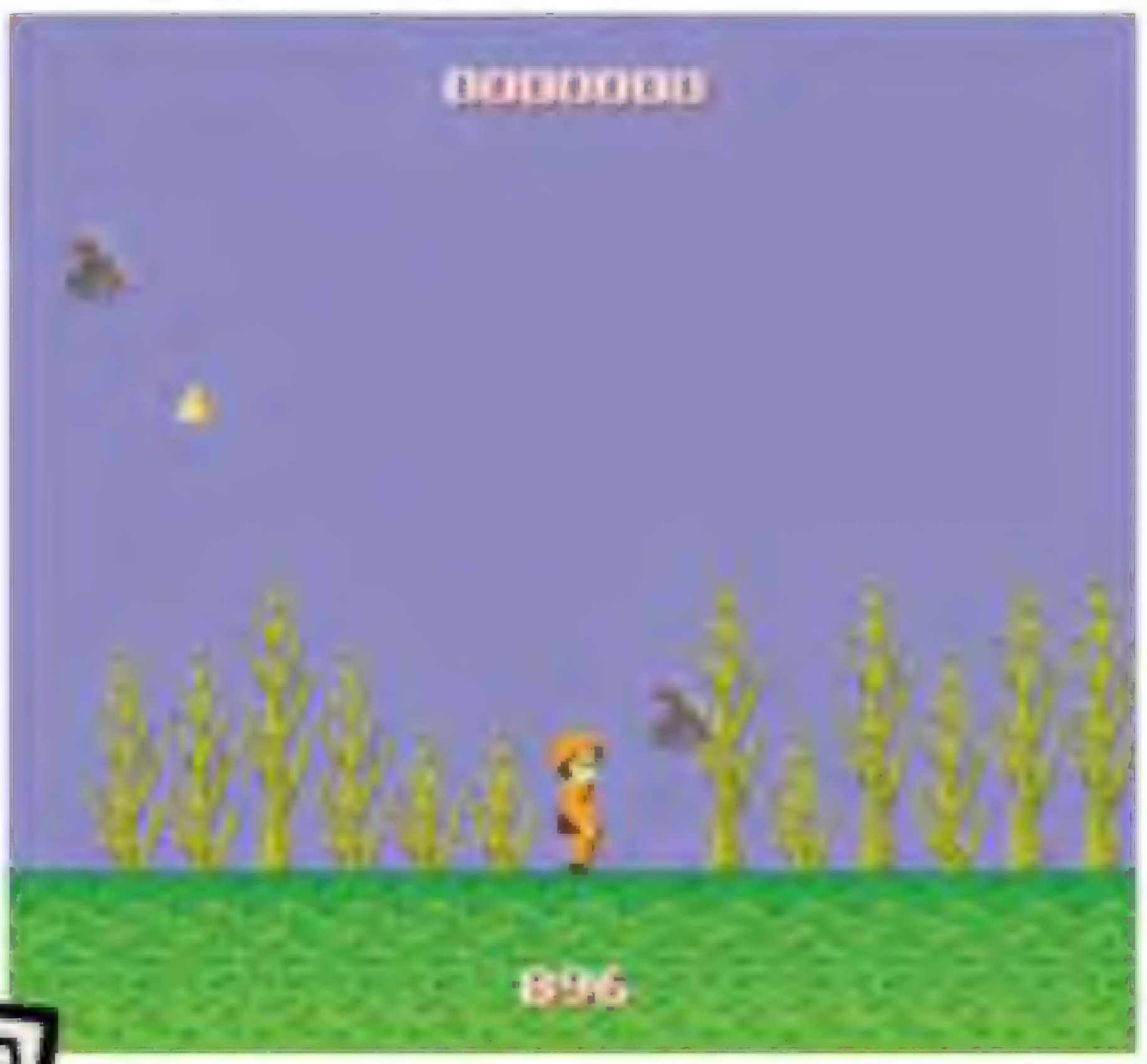


» [SNES] *The Mayan Adventure* saw Activision try to capitalise on the 16-bit platformer trend. It's a solid effort, and fairly popular in its day.

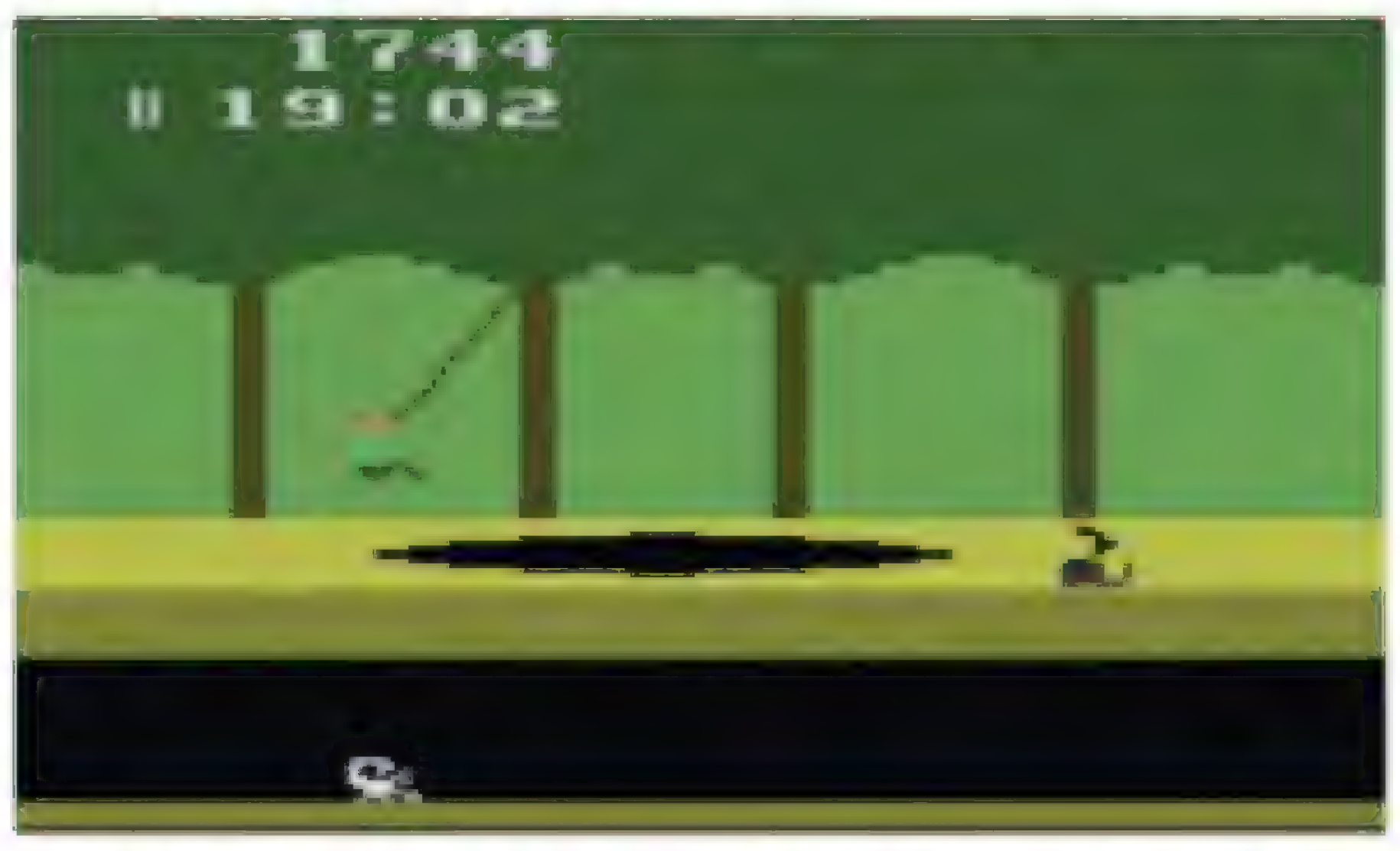
DAVID ON...

The Pitfall sequels

"I have seen them all, and played a few. I don't think of them as *Pitfall!* sequels as much as other games with the name *Pitfall* placed on them. But they sure engender strong feelings from game players."



» [NES] Activision did intend to release a sequel to *Super Pitfall*. It was to be heavily based around the Sunsoft game *Atlantis No Nazo*, which was also a bit rubbish.



» [Atari 2600] Snakes are just one of the many hazards that Harry must avoid. They have appeared in numerous sequels.

I was actually beginning to warm up to the idea around the time that there was a management change at the company. At that point I decided that it was no longer a company where I wanted to work. And since Activision owns the *Pitfall!* property, it wasn't going to be very likely that I would make another sequel. As you know, the retro gaming community continue to bring it up every year as well. I won't be doing *Pitfall III* on the Atari 2600. But I have still never said never on doing another 2600 game one day."

Though Harry never graced the 2600 again, his adventures continued. Following the release of *Pitfall II*, Sega licensed the property from Activision and used it to create an arcade game based on *Pitfall II*. Titled *Pitfall II: The Lost Caverns*, it featured levels loosely based on both 2600 games, plus some new ones. Running on Sega's System 1 arcade hardware (which generated *Wonder Boy* and *Flicky*) the graphics were rendered in that bright and colourful Eighties Sega look, and in addition to overhauled stages and graphics, new dangers were also added, including lightning bolts, fireballs and even killer tomatoes.

A loose port of *Pitfall II: Lost Caverns* also found its way to NES, this one with the dubious moniker *Super Pitfall*. Published by Activision and developed by Japanese company Micronics, *Super Pitfall* is derided by most fans of the series. It suffers from poor collision detection, flickering sprites, stilted animation, and frustrating trial and error gameplay – chiefly a result of items required to complete the game only becoming visible to the player when Harry jumps in the vicinity of their hidden trigger spots. To make matters worse, Harry was also given a gun that proved useless against most enemies (bullets pass over their heads), and was redrawn to look like Mario in a safari hat. Possibly too embarrassed to show his face after this disappointing effort, several years passed before he would appear on our screens again. Thankfully though, his next adventure was a marked improvement.

With the 16-bit era firmly upon us and the likes of *Super Mario World* and *Sonic The Hedgehog* continuing the popularity of platform games, Activision decided the time was right to reboot *Pitfall* for a new generation of gamers. *Pitfall: The Mayan Adventure*, which Activision developed in conjunction with Redline Games, cast players in the role of Harry's son and saw him embark on a mission to rescue his father after he mysteriously goes missing during a quest.

The Mayan Adventure was an action-heavy 2D platformer with levels that had little innovation or opportunity for exploration. It was rescued by some sumptuous visuals, a smattering of entertaining action set-piece moments and silky animation. It also featured an amusing victory screen with a brief cameo from Harry senior, who is depicted in all his 2600 glory. The original 2600 game was also tucked away as a neat bonus for fans to discover too.

As polygon graphics appeared and 3D platformers started trending, so Activision saw another opportunity to capitalise with *Pitfall*. Harry kicked off his 3D adventures

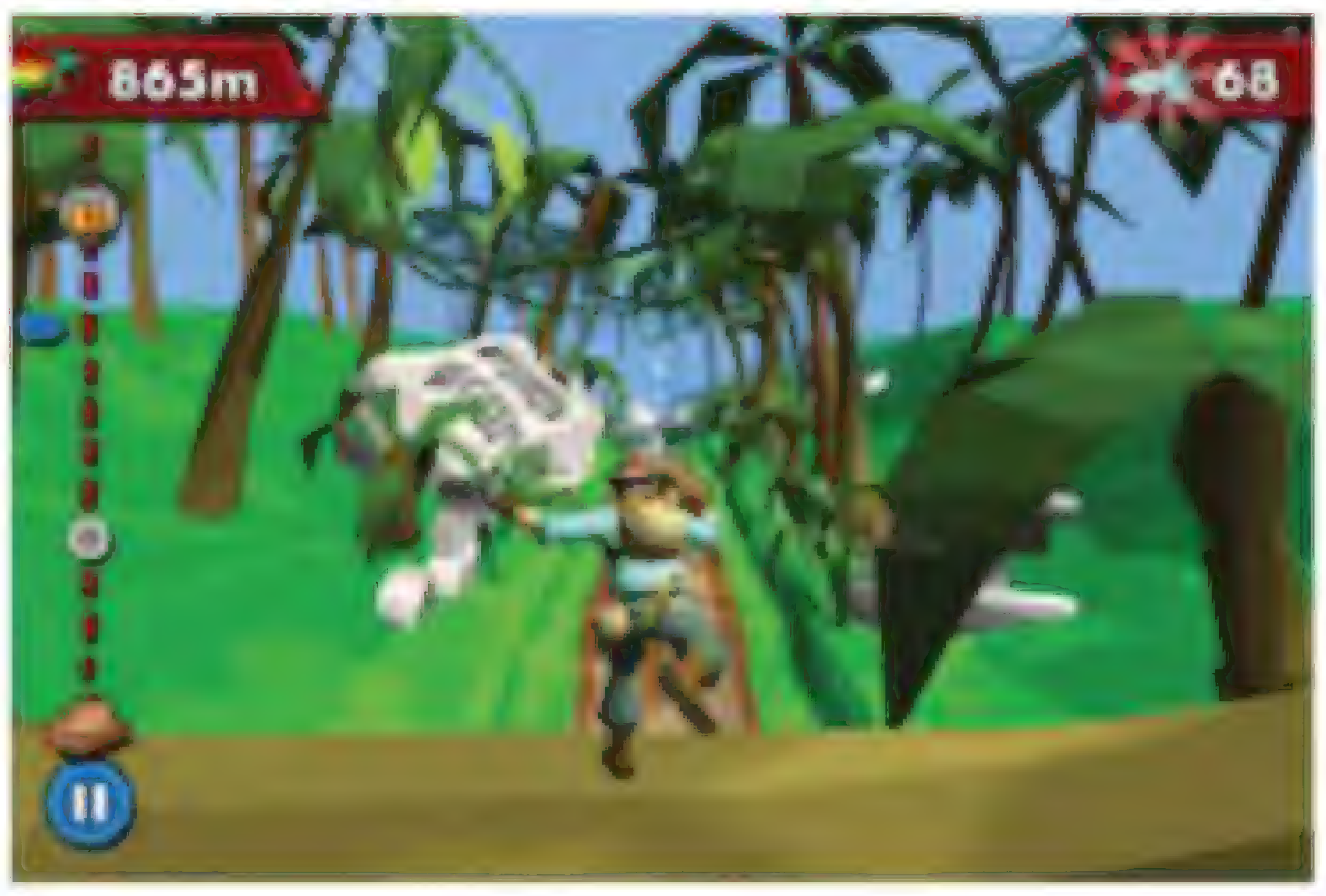
Mobile Pitfall!

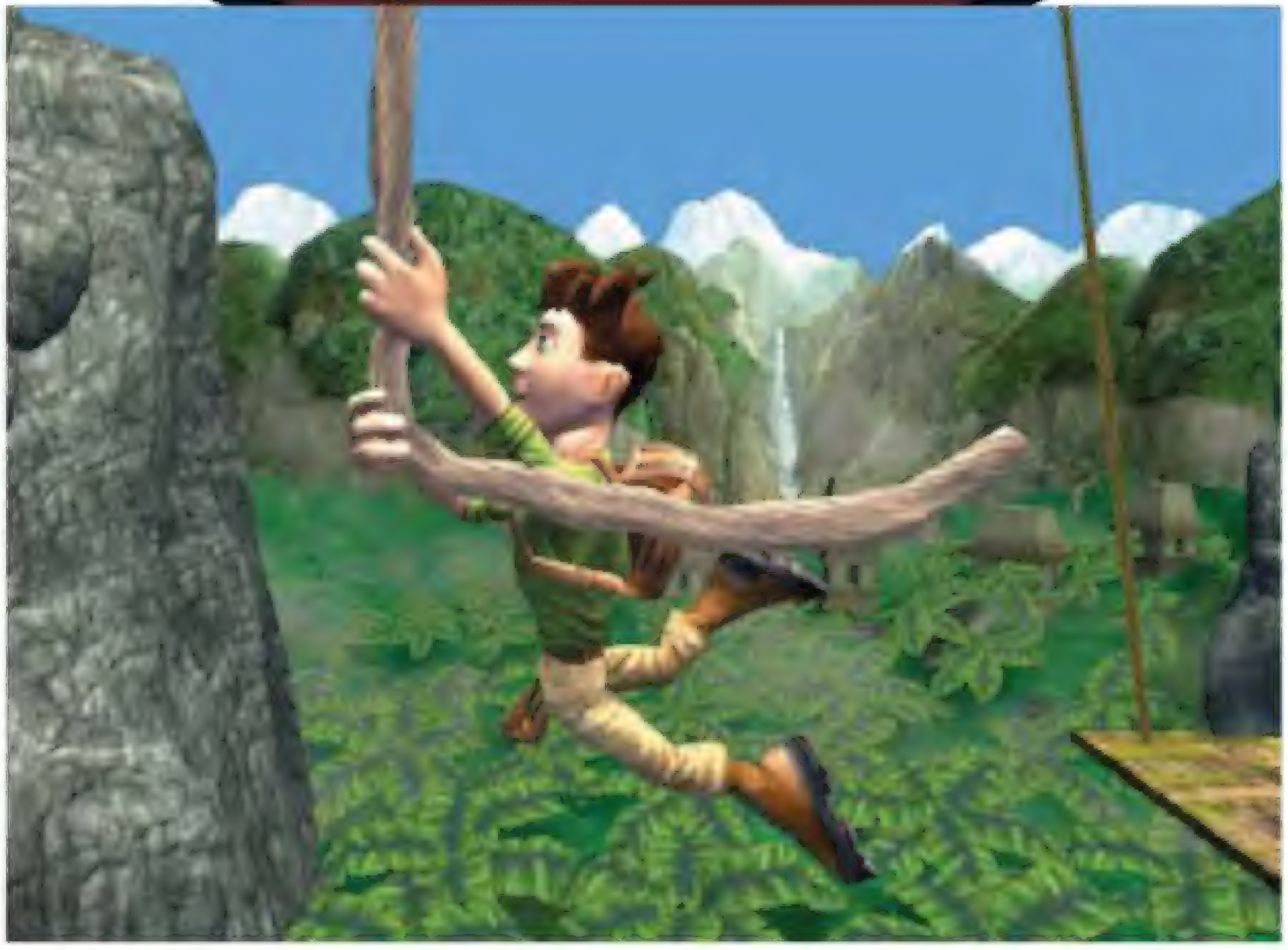
We speak to Activision Mobile's Gordon Hall to find out how The Blast Furnace has revitalised the 2600 classic for iOS

We'll start with the obvious question. Why *Pitfall!* as your first game?
Activision has definitely got some fantastic back catalogue IP that we'd like to trawl through but the primary motivator behind us going for *Pitfall!* was because it's such an iconic game. When I was looking through the back catalogue, *Pitfall!* stuck out as one of the highlights. It was a massive seller back in the day, in 1982. It's the game's 30th anniversary this year.

How have you considered gaming nostalgia with the new version?
It's a fast frenetic game that we've put out, probably the fastest infinite runner going, but it stays true to the original. You've got the snakes and the scorpions, the crocodiles and the swinging vines but it's been reimagined for simple control mechanisms and really pushes that sense of pace. It seemed a perfect title to me because you could easily imagine it being remade in this way.

Can we expect to see more retro Activision games receive iOS updates?
I'm so reticent to name titles because people always assume you're going to do them but I can answer your question more vaguely to say which games bit me back in the day that I'd like to play on mobile. There's a couple that stand out straight away and that's the likes of *River Raid* and *Kaboom*, which use simple game mechanics that would work brilliantly on mobile.





» [PS2] *The Lost Expedition* pays a neat tribute to David Crane. It's a decent sequel, even if the graphics look a bit childish.

with *Pitfall 3D: Beyond The Jungle* on PlayStation. A third-person action game with light platforming elements, players reprised the role of Harry's son, who was now rendered in 3D and voiced by actor Bruce 'Ash Williams' Campbell. It was another polished outing but ultimately felt derivative for the iconic franchise, and coming in the wake of the likes of *Mario 64*, *Crash Bandicoot* and *Tomb Raider*, it struggled to get noticed against the competition.

“ I have never said never on doing another 2600 game ”

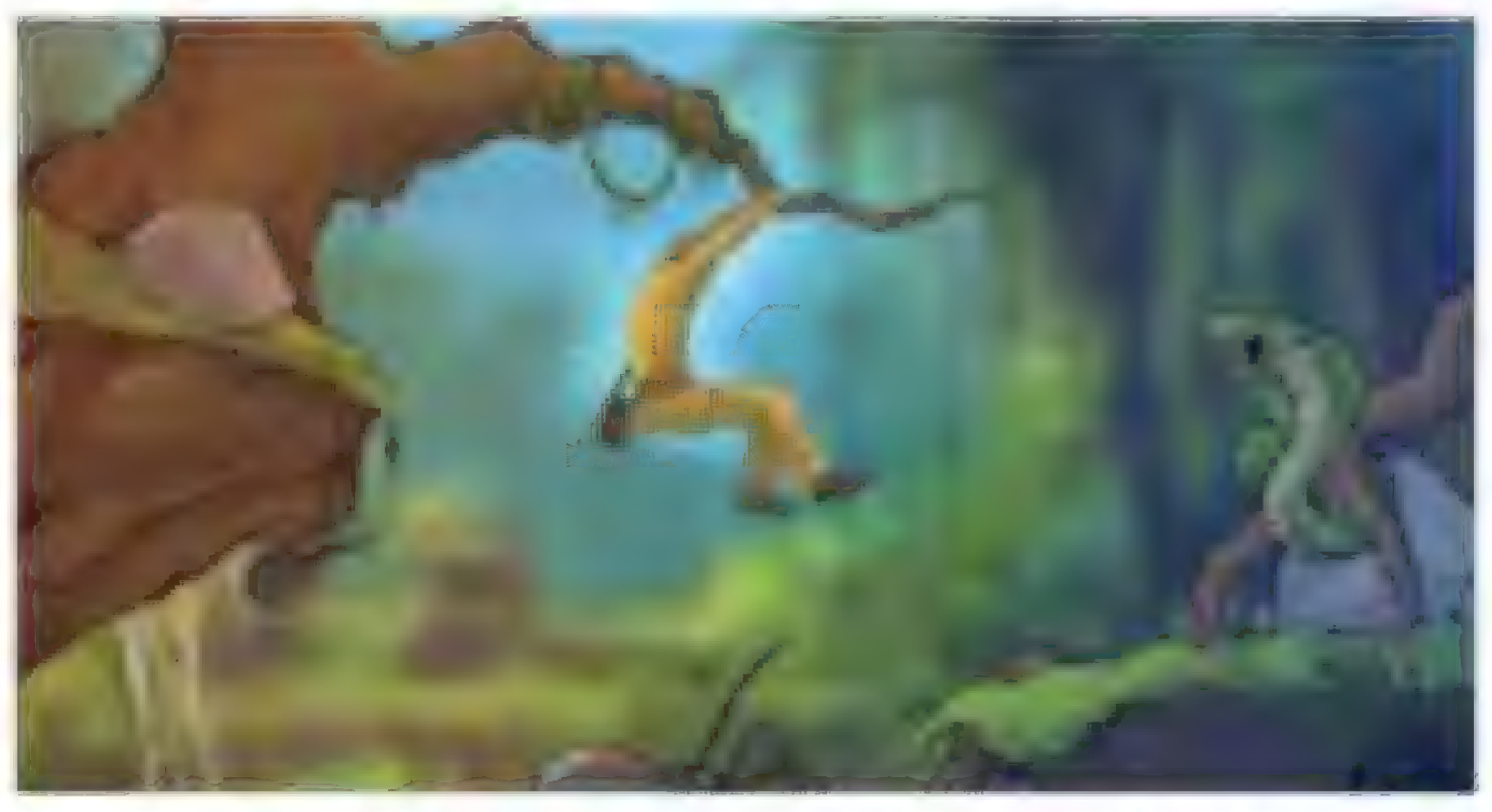
The next release was *Pitfall: The Lost Expedition* in 2004, which originally appeared on PS2, GameCube, Xbox, PC and GBA, before receiving a rebadged Wii conversion titled *Pitfall: The Big Adventure* that featured enhance graphics and motion control functionality. Though we suspect that most 2600-owning *Pitfall* fans were put off by its cartoonish *Spyro*-style aesthetics, it's actually surprisingly well made. It also has some nice humour too, with Harry portrayed as a kind of Indiana Jones meets Pepé Le Pew type.

It also makes a few neat references to David, with the story explaining that Harry was fostered by a Dr. David Crane after his father left him to go off adventuring. The ending is also particularly poignant, as it shows Harry telling his love interest that he wishes to return back home to see David someday.

Though *Pitfall* is no longer the king of the swingers in the platformer market, it still resonates with gamers today. Activision has selected the franchise to spearhead its new mobile games studio, The Blast Furnace. Its debut iOS title transforms the 30-year-old game into an entertaining and surprisingly addictive endless runner while still managing to look and feel connected to the roots of the original 1982 game.

We finish up our time with David by asking him how he feels about *Pitfall!* reaching 30, and being a big part of such an iconic series that still endures today.

"The beauty of *Pitfall!* was its accessibility. You didn't have to be a hardcore gamer to have fun playing the game, but if you were, you still got plenty of challenging entertainment. The key word is challenging. Rob Fulop used to say 'You want hard? How about a screen where a wizened old man sits up and says "I am thinking of a number between one and a million." That's hard.' What you have to come up with is gameplay that is challenging, without being hard." Big difference, and a tall order. *Pitfall!* was designed to lead a player through the game, only introducing new skills when the player was ready to attempt them. Thus challenges could be added without making the game too hard."



» David's *Jungle Adventure*, a project for Windows, Mac, Linux, and Ouya, failed to reach its Kickstarter goal of $900,000.

30 YEARS OF PITFALLS

1982 to 2012

A complete rundown of every game in the series, from 1982 to 2012

1982
Activision
PITFALL!

Pitfall!
Pitfall! was a landmark videogame, introducing a gaming icon, squeezing more than thought possible from the 2600, and putting Activision firmly on the map.

1983
PITFALL II

Pitfall II: Lost Caverns
The superb sequel was co-powered by a chip in its cart, allowing for improved visuals, sounds and ultimately a bigger and better game.

1984
PITFALL II

Pitfall II: Lost Caverns 'Adventurer's Edition'
The Atari 8-bit and 5200 versions feature a bonus level upon completion. It's tougher than the original stage.

Pitfall II: The Lost Caverns
Sega licenced the property from Activision to produce this arcade game loosely based on the second game.

1985
MY CARD

Pitfall II
A home port of Sega's *Pitfall II* arcade game for the Sega Master System in Japan, it was released via My Card.

1986
SUPER PITFALL

Super Pitfall
Unpopular NES game with gameplay issues aplenty and a gun-wielding Harry that looks like Mario.

1994
PITFALL

Pitfall: The Mayan Adventure
Harry makes the leap to 16-bit in this stunning-looking platformer. It's light on exploration but extremely polished.

1998
PlayStation
PITFALL

Pitfall 3D: Beyond The Jungle
Harry got remade in polygons for this third-person action adventure. Featuring the voice talent of Bruce Campbell.

1998
GAME BOY Color
PITFALL

Pitfall: Beyond The Jungle
A loose 2D Game Boy Colour version of the 3D adventure. Typical side-scrolling platform fare, with good visuals.

2001
PITFALL

Pitfall: The Mayan Adventure GBA
A decent GBA port, visually it doesn't look as nice as the original, but the gameplay and levels are untouched.

2004
PITFALL

Pitfall: The Lost Expedition
A colourful cartoony *Pitfall* sequel aimed more towards younger audiences. Plays like *Crash Bandicoot*, *Spyro*, *Jak & Daxter* and the like.

2004
PITFALL

Pitfall: The Lost Expedition GBA
Another 2D reimagining of its 3D counterpart, *The Lost Expedition* keeps the colourful cartoon art style, story and tone of the main release.

2008
Wii
PITFALL

Pitfall: The Big Adventure
A Wii conversion of *The Lost Expedition* that features enhanced visuals, smoother animation and retrofits motion controls into the action.

Pitfall!
The first title to come from Activision Mobile reinvents the original *Pitfall!* into a colourful and fast-paced infinite runner for iOS.

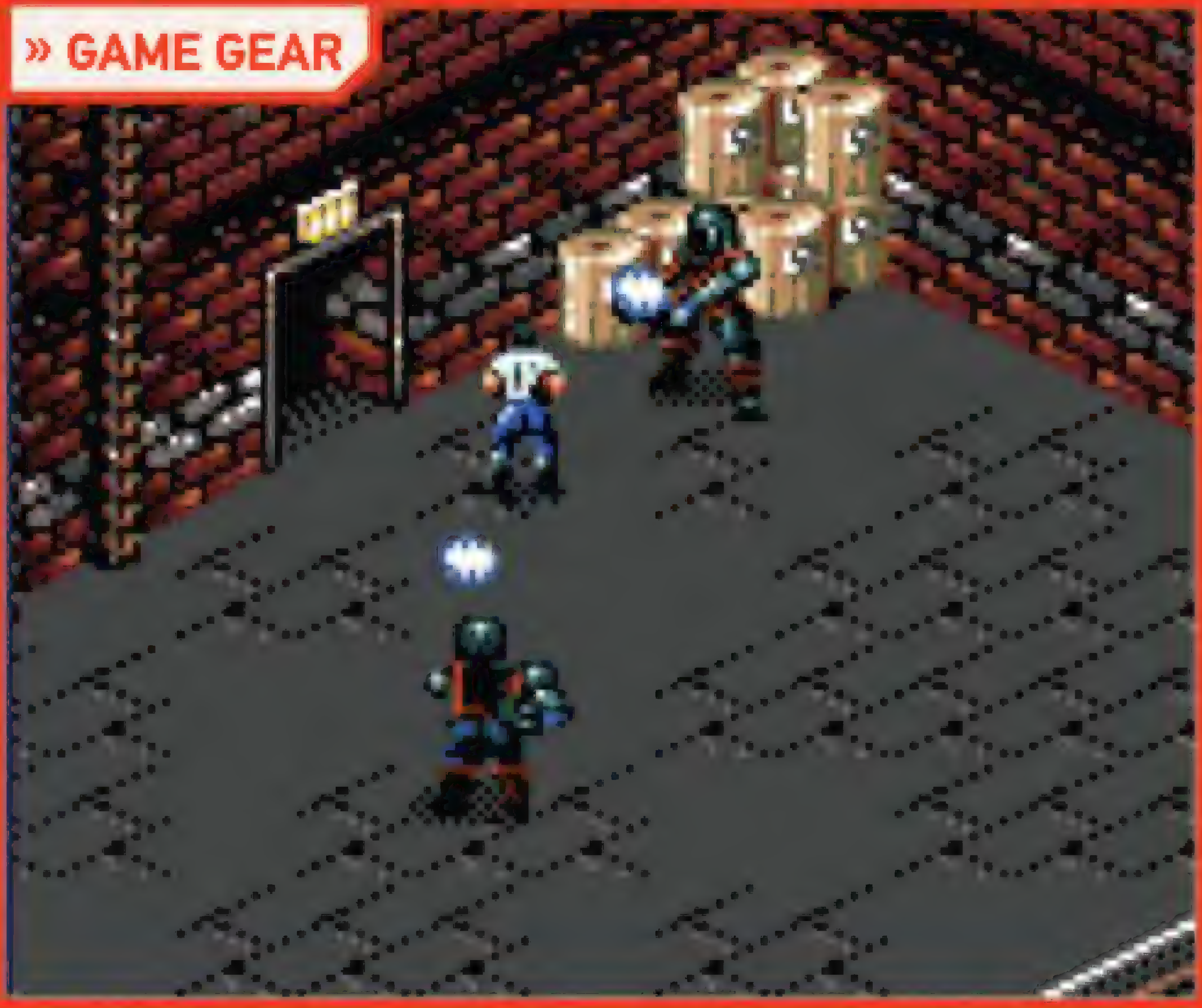
Minority Report

If you want forgotten gems on household names and interesting games for rarely covered systems, this is the place. This time we pick up the Oregon Trail, hitch a ride on the Crazy Train and play an impressive-looking isometric shooter for the Game Gear

ARENA: MAZE OF DEATH

■ SYSTEM: GAME GEAR ■ DEVELOPER: EDEN ENTERTAINMENT SOFTWARE ■ YEAR: 1996

» GAME GEAR



» [Game Gear] *Arena* looks stunning. It's just a shame the gameplay doesn't match the visuals.

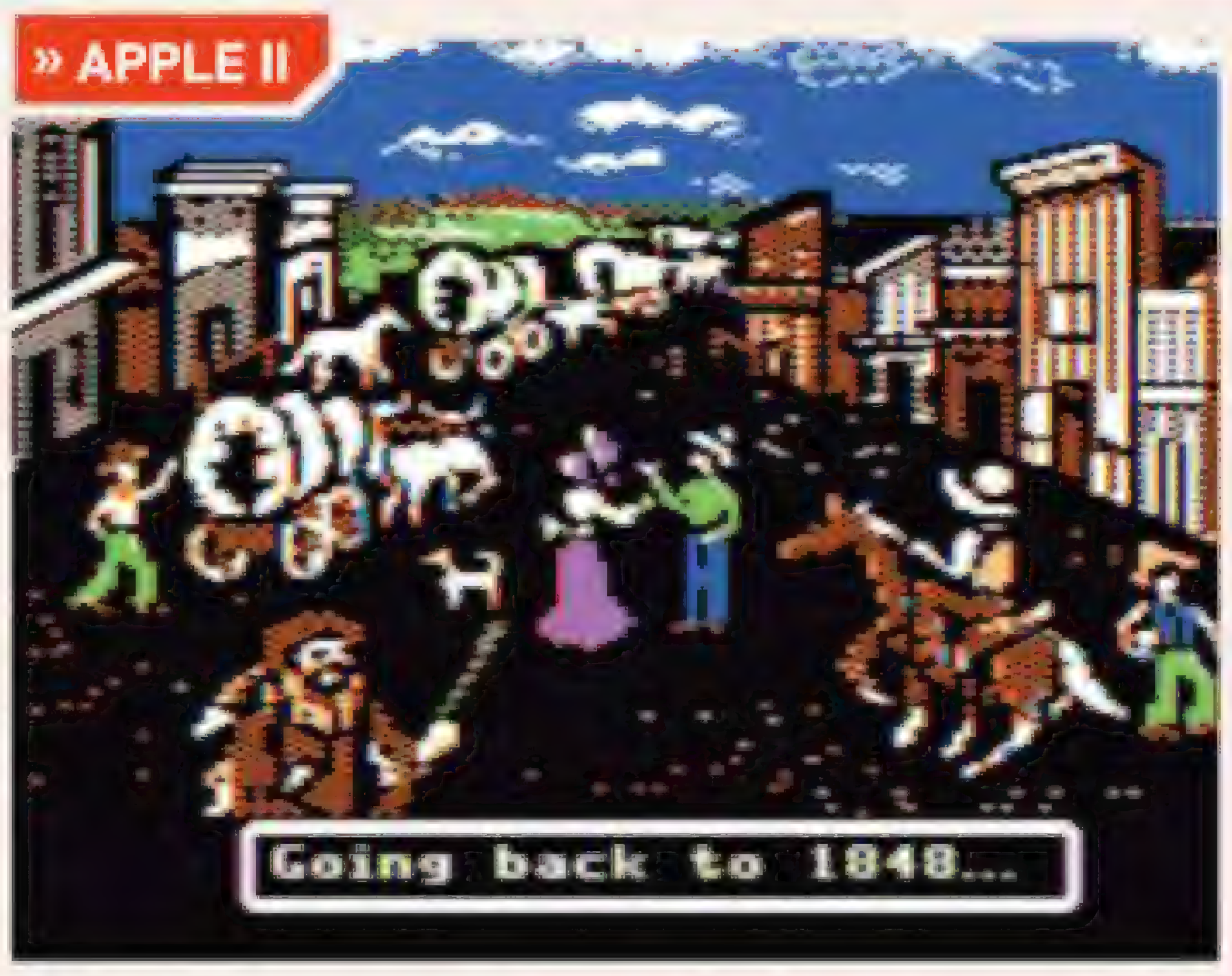
■ *Arena: Maze Of Death* might sound like a Bruce Lee movie, but its action is more Willis than Lee. Developed by Eden Entertainment Software, whose less than impressive rap sheet includes the Mega Drive port of *Joe & Mac* and *RoboCop 3*, it stars an all-action hero type who must run around maze-like stages shooting everything in sight, all for the good of mankind, naturally.

Released late in the Game Gear's life – six years after the launch of the console, in fact – *Arena* assuredly ranks as one of the best-looking shooters ever released for Sega's first handheld. Visually it's a bit of a marvel, in fact, with its detail-packed isometric levels and animated sprites giving it a strong resemblance to the 16-bit classic *Shadowrun*. Sadly, this is where comparisons end.

Set in a glum future, *Arena* tells the story of Guy Freelander, a lone man with a name like a car who's on a desperate mission to bring down a corrupt government using a sensitive videotape that shows an illegal meeting taking place between officials and a shady media corporation. As this incredibly original tale starts to unfold, you realise that *Arena*'s gameplay does little to push the envelope of the run-and-gun genre and its beauty is sadly only skin deep.

Guiding your hero through each stage, with the ultimate aim to reach a television studio where he plans to broadcast the tape for the whole world to see, *Arena*'s missions mainly involve running and gunning through samey-looking rooms in order to find different coloured key cards that grant access to the exit. Along the way

» APPLE II

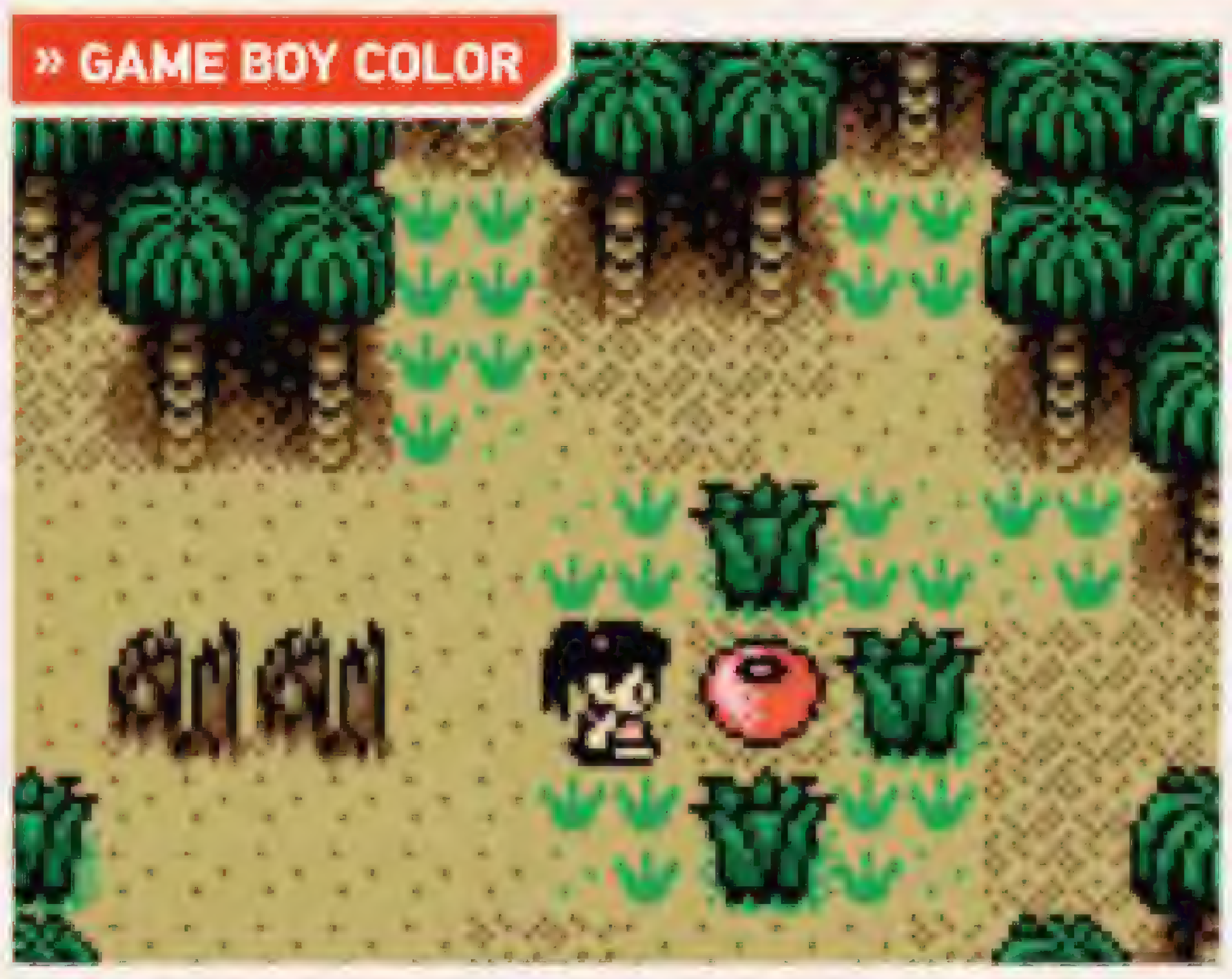


» THE OREGON TRAIL

■ SYSTEM: APPLE II
■ DEVELOPER: MECC ■ YEAR: 1981

■ ***The Oregon Trail*** was first released in 1971 on an HP Time-Shared BASIC. Developed by Don Rawitsch, Bill Heinemann and Paul Dillenberger, it was created so Rawitsch could teach his students about the realities of 19th Century pioneer life. It became so popular that MECC, a company specialising in educational software, hired Rawitsch to flesh his project out. The end result was an engaging adventure that had the player managing resources, battling wolves, surviving diseases and generally trying to avoid dying from the many curveballs that nature threw at them.

» GAME BOY COLOR

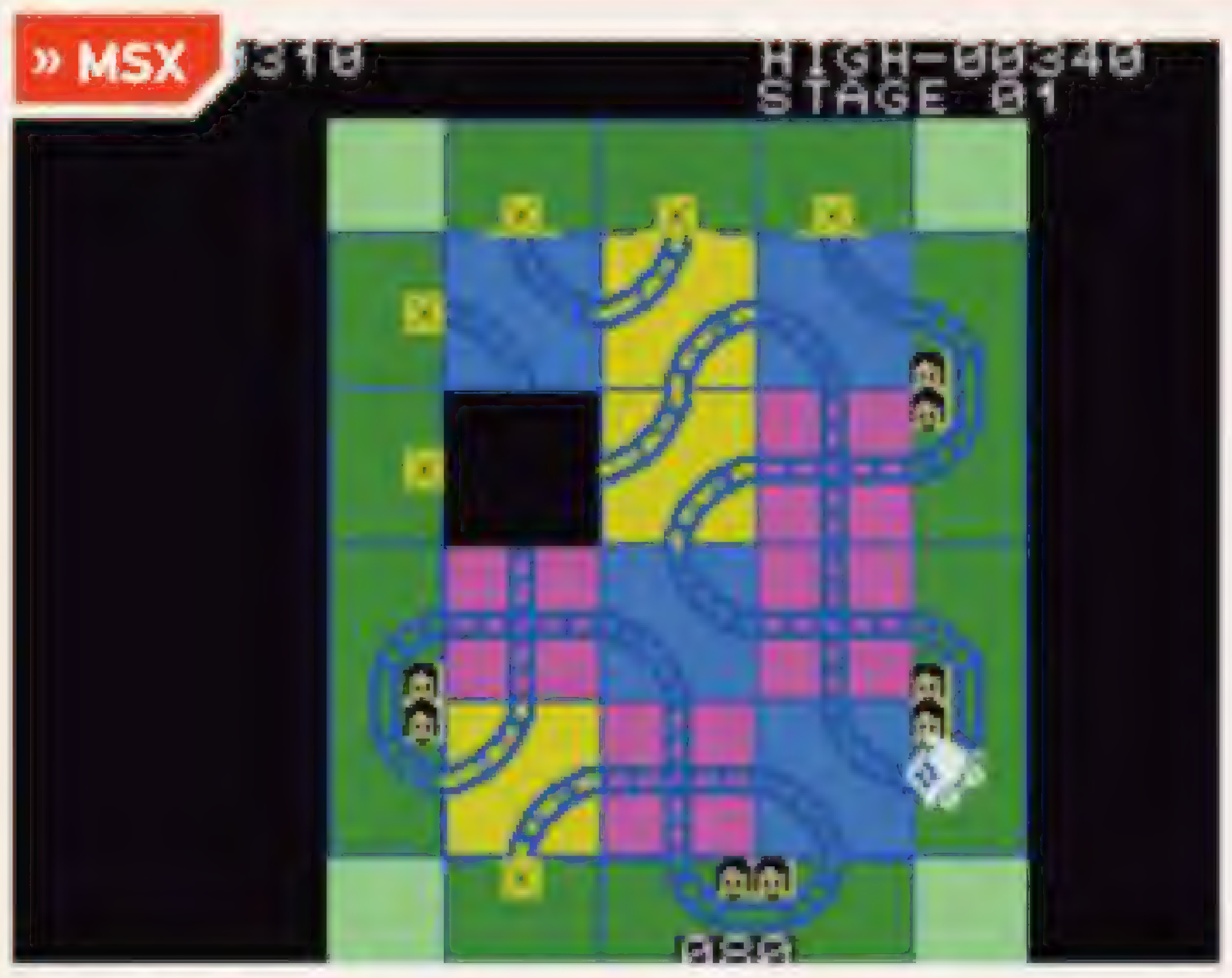


» STRANDED KIDS

■ SYSTEM: GAME BOY COLOR
■ DEVELOPER: KONAMI ■ YEAR: 1999

■ ***Stranded Kids* initially** appears to be a cute *Zelda* clone, but that's where the similarities end. It's a non-linear, extremely engaging adventure where your shipwrecked child must use their wits to survive on a deserted island. Food and water must be gathered and eaten, you must defend yourself against enemies, and you will have to craft a number of different items, from fishing rods to tools and weapons, in order to get by. It's a clever game that rewards exploration and has a host of different endings, offering plenty of replay value. It has received several Wii and DS sequels as *Lost In Blue*.

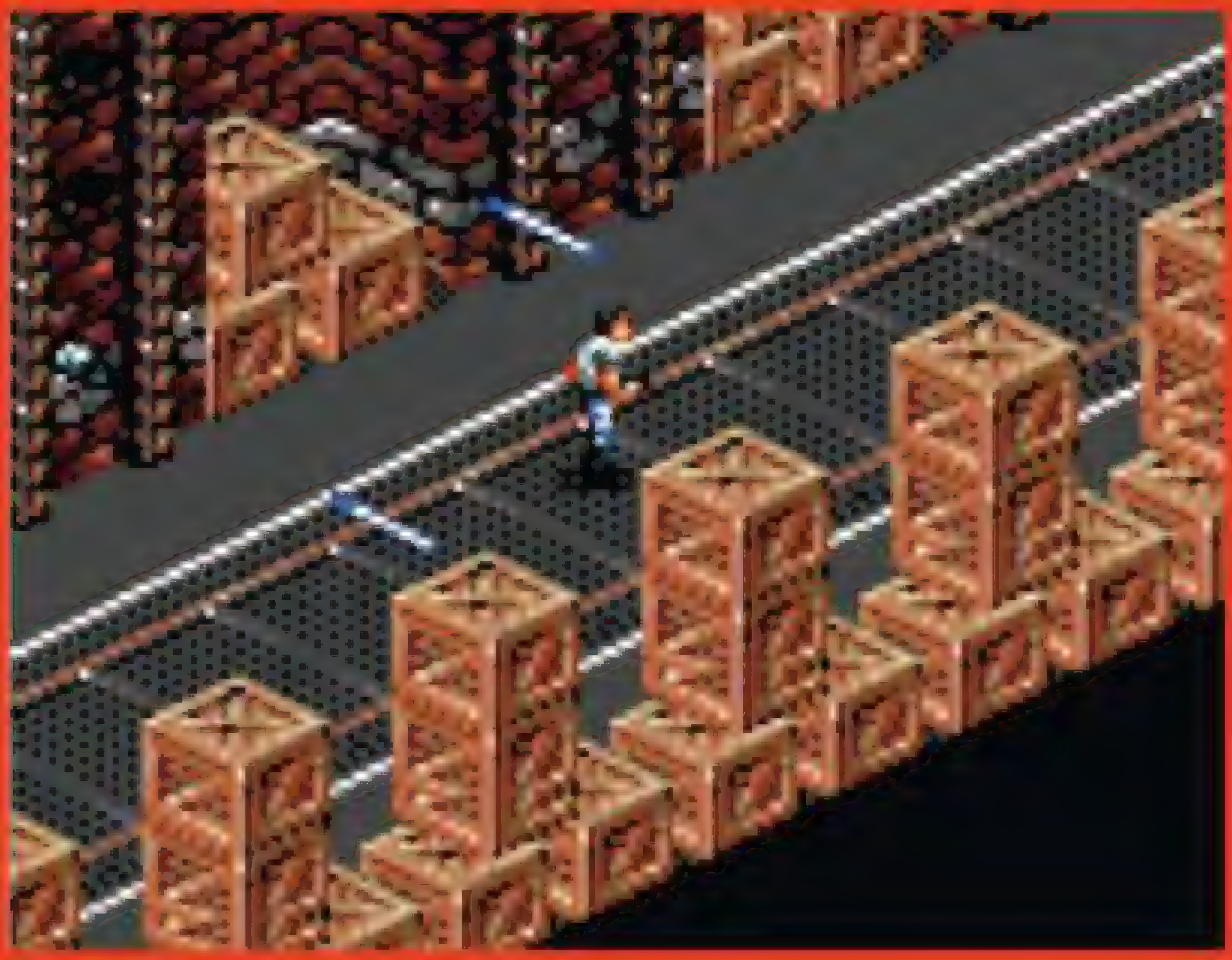
» MSX



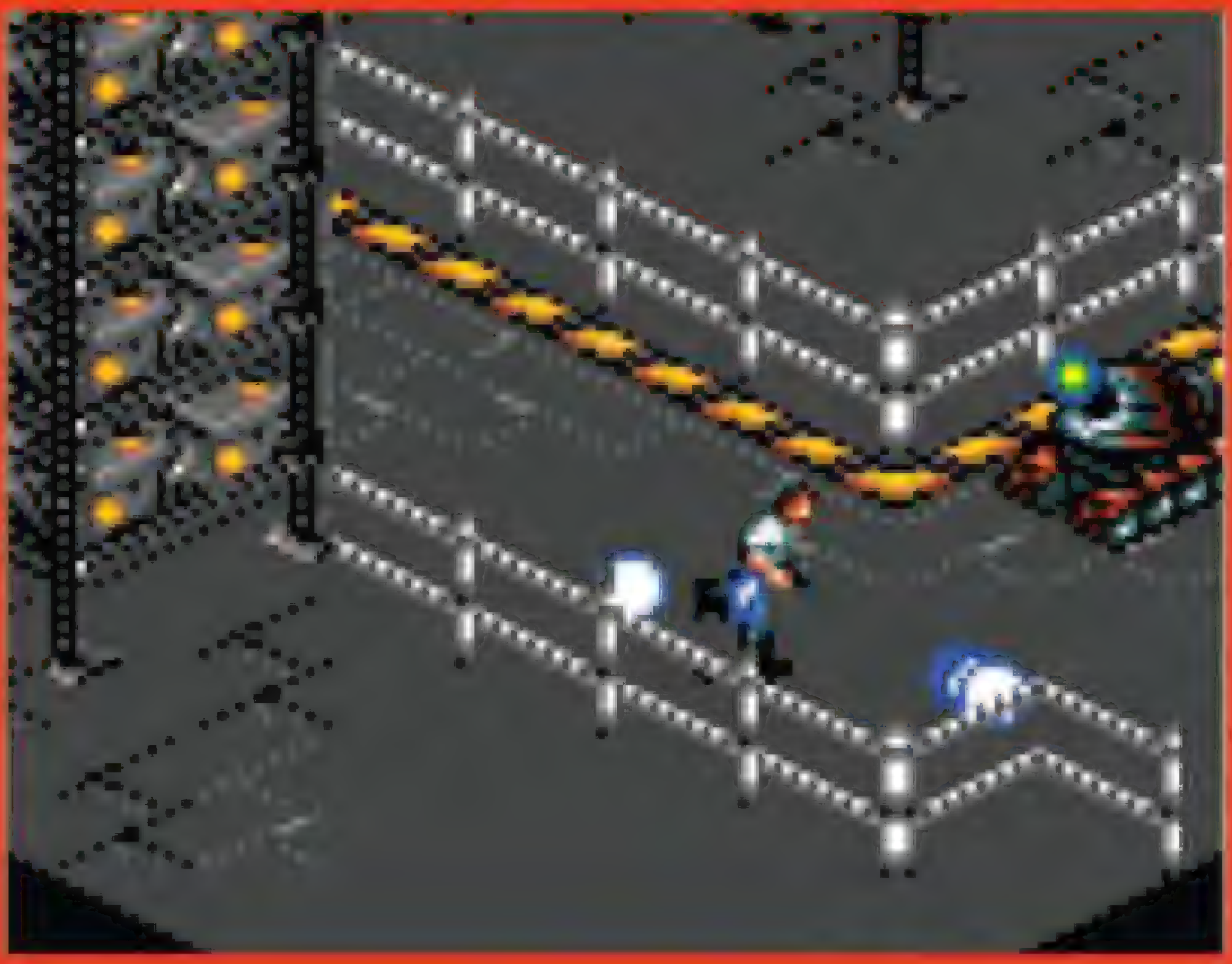
» CRAZY TRAIN

■ SYSTEM: MSX
■ DEVELOPER: HIT BIT ■ YEAR: 1983

■ **This conversion of** Konami's *Loco-Motion* coin-op is a surprisingly decent adaptation. It's effectively a clever take on the sliding block puzzle, but this time each piece has rail tracks on it. By sliding the pieces together you can send your train around the track and hopefully pick up the waiting customers. Take too long and you'll receive time penalties and summon a 'Crazy Train', which you must avoid at all costs. While things start off sedately, you'll soon find it incredibly hard to appease waiting customers, which in turn throws more and more trains at you. A fast and frantic puzzler that's worth investigating.



» [Game Gear] The first few levels are a breeze but later ones ramp up the challenge.



» [Game Gear] Even if they look alike, this is nowhere near as good as *Shadowrun*.

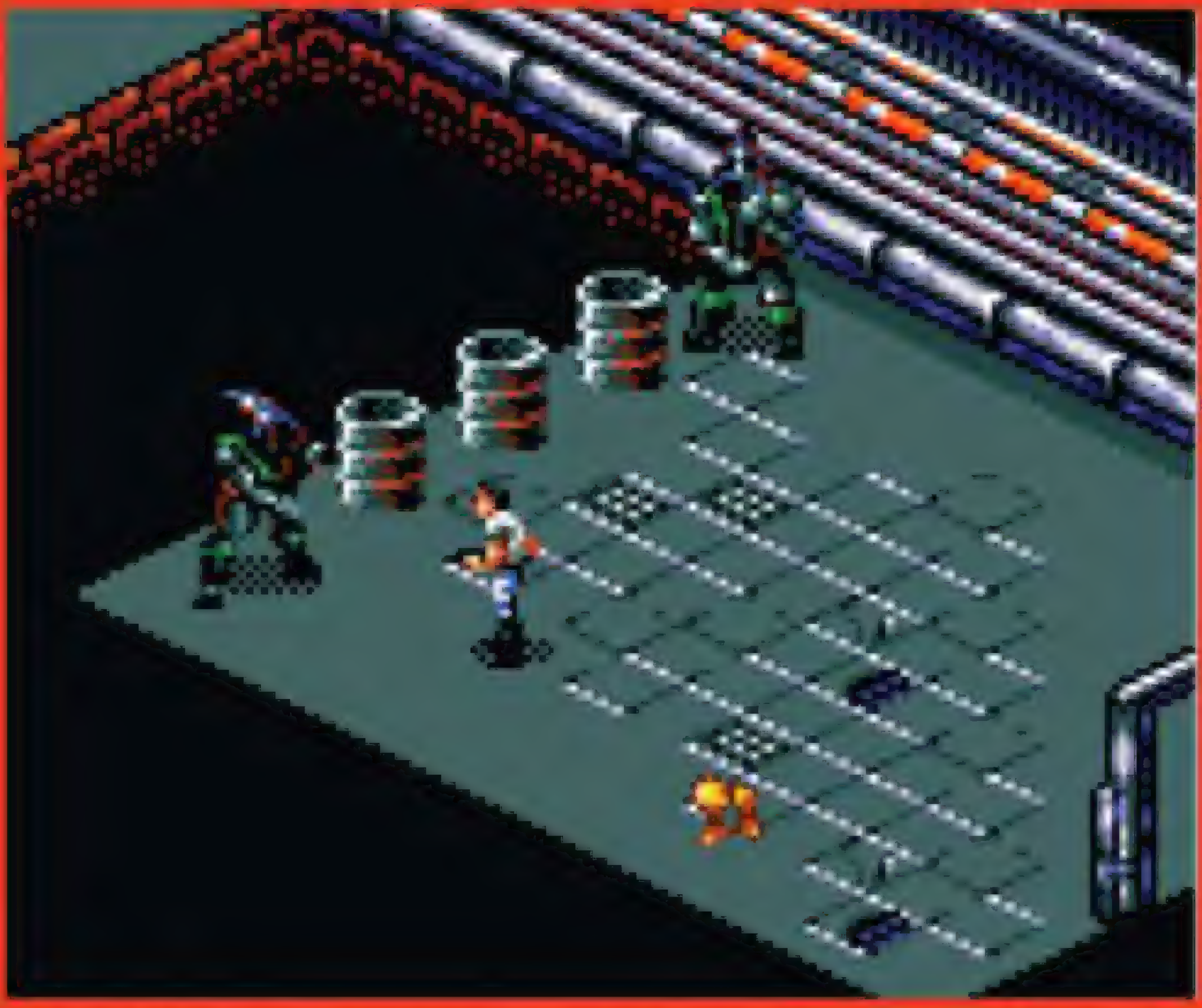
» ABOUT THE SYSTEM

- The Game Gear launched on 6 October 1990, and was Sega's first handheld games console
- The codename for the machine was Mercury
- The console launched in the US for $150 and £145 in the UK

you'll have to avoid the occasional booby trap, jump on the odd moving platform and gun down a few robotic civil servants, but for the most part you're doing a lot of running and plenty of backtracking.

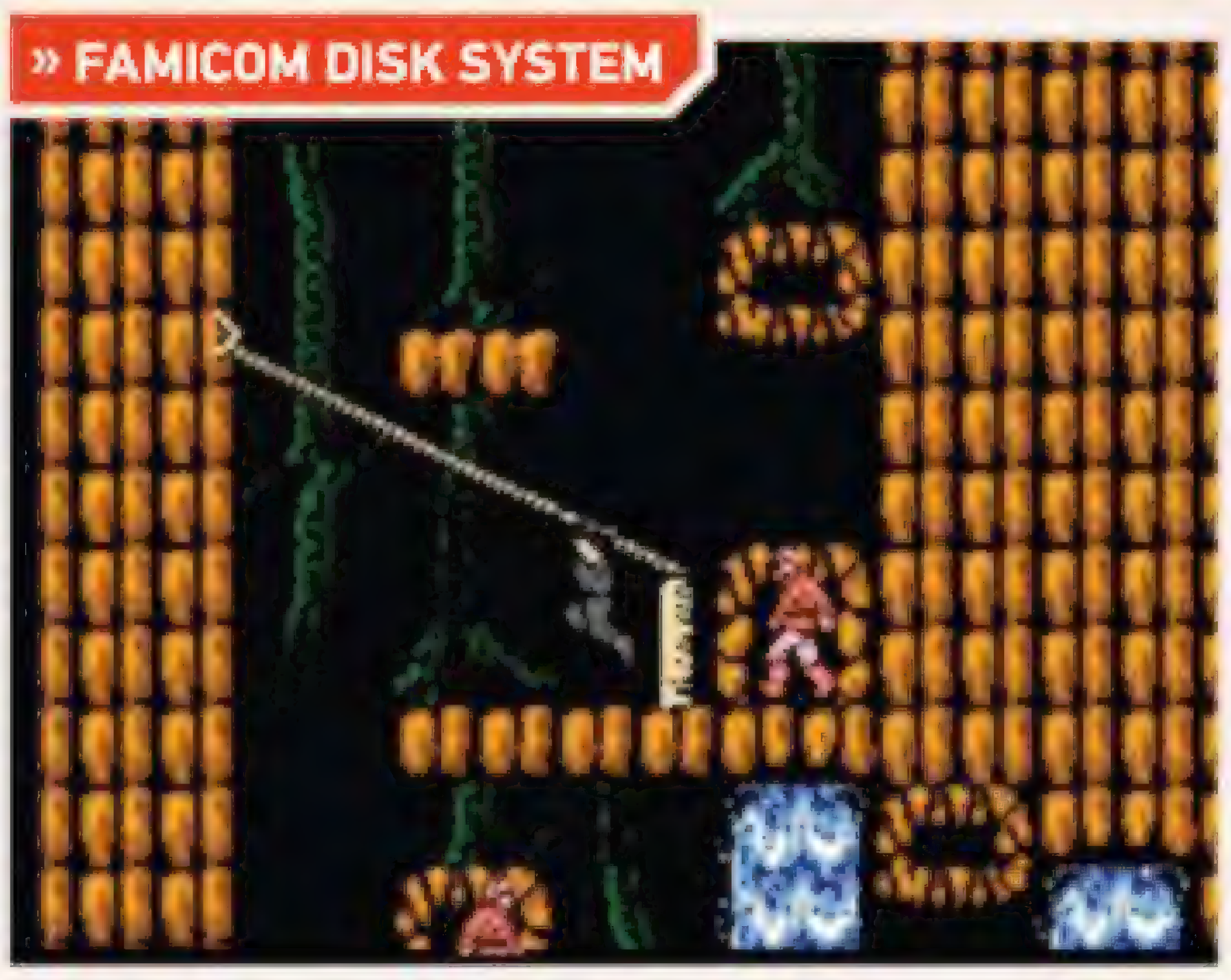
The biggest problem we have with *Arena* is its overall lack of imagination. Enemies are bland and forgettable, and to make things worse don't really pose much of a threat at the start of the game. Despite the fact that they annoyingly respawn and ammo is limited – if you run out of bullets you're forced to attack using a knife that is difficult to aim with any precision – most of the time you can simply run right past them, only needing to resort to pulling your gun out if one happens to be standing in front of something you want, like an extra life or, more commonly, a key card. However, when you get to the later stages, the challenge climbs considerably. Enemies take more punishment, their bullets become faster, and the levels get trickier to navigate, and it's then that you really start to curse the fact that *Arena* doesn't have a map screen or on-screen health meter.

While it sounds like we're giving *Arena* a bit of a bashing, the visuals do go some way to rescuing it. Sure, it's not the deepest, most exciting or most innovative shooter on the Game Gear, but there are very few that match it on a visual level, and we'd be lying if we said it doesn't have its fun moments. So while *Maze Of Death* may have a few issues, it's still worth investigating if you're a fan of the genre or just simply want to see a Game Gear being put through its paces.



» [Game Gear] There is a small selection of weapons, but they're hardly unique – rapid fire and spread shot.

» FAMICOM DISK SYSTEM

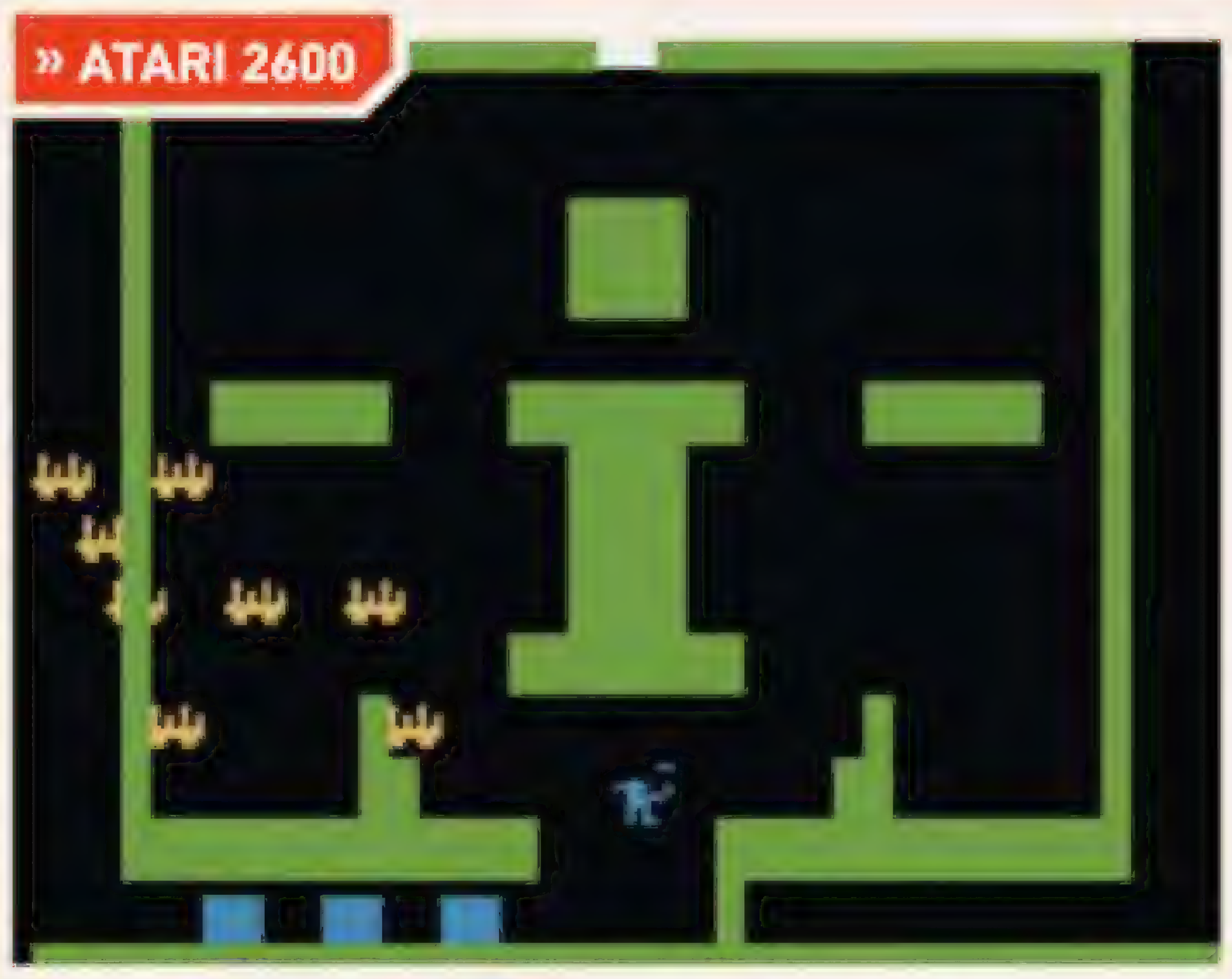


» ALMANA NO KISEKI

■ SYSTEM: FAMICOM DISK SYSTEM
■ DEVELOPER: KONAMI ■ YEAR: 1987

■ **We had high** hopes for *Almana No Kiseki*. Why? Well, it combines two awesome things in one game: *Castlevania* and *Indiana Jones*. It has a similar visual style and gameplay to the former but protagonist and story like the latter. Sadly, though, the quality and horrible controls kill the marriage. The problem lies with the hero's *Bionic Commando*-style grappling hook. While you'd think it would make getting around easier, it has the opposite effect in practice, as it can only be fired diagonally skyward. And respawning enemies don't help matters either. How Konami could mess up a *Castlevania* clone is beyond us.

» ATARI 2600

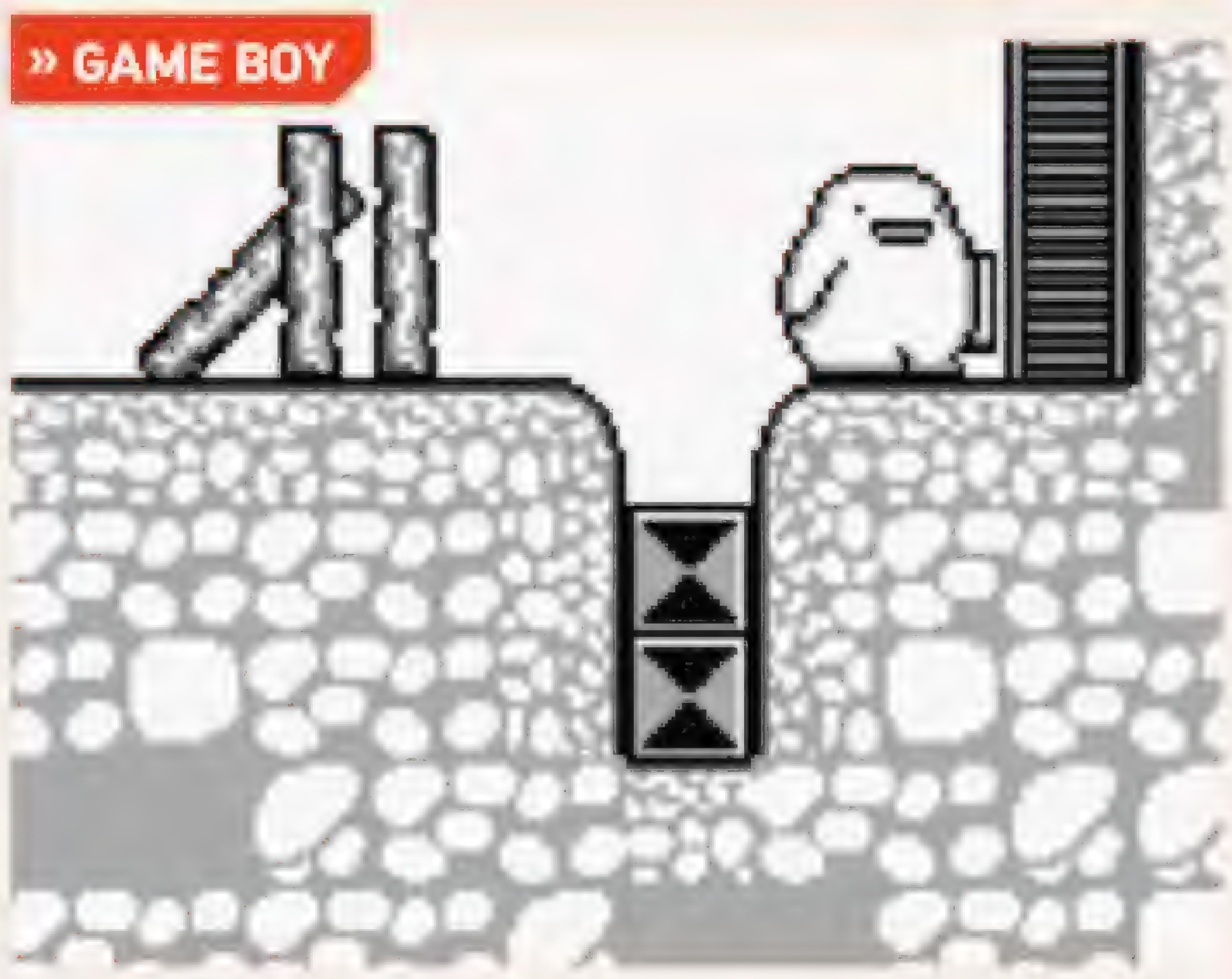


» TOWERING INFERNO

■ SYSTEM: ATARI 2600
■ DEVELOPER: WESTERN TECHNOLOGIES ■ YEAR: 1982

■ **Based on the** 1974 disaster movie of the same name, *Towering Inferno* is a superb 2600 game. Playing a firefighter, you must make your way up each floor of the skyscraper while avoiding flames and rescuing survivors by touching a square at the top of the screen and then getting back again. The brilliance lies in its presentation, though. Thanks to some effective use of sprite flickering, the look and behaviour of the flames are as real as those in any game we've played. The end result is a surprisingly tense and addictive game. For added challenge, try finishing it without using the hose.

» GAME BOY



» NOOBOW

■ SYSTEM: GAME BOY
■ DEVELOPER: IREM ■ YEAR: 1992

■ **This charming puzzler** marks a change of pace for *R-Type* creator Irem. Starring a *Kirby*-style character from an obscure Japanese manga, you must navigate Noobow to the end of each stage by completing a series of place-object-here puzzles. Noobow isn't the nimblest of creatures, and so guiding him through the game's levels requires some canny block placement, lever-turning and the occasional bit of hang-gliding. Clearly designed with young gamers in mind, *Noobow* has little replay value. It's fun while it lasts, though, and as it's impossible to kill Noobow, it has a nice serene feel too.

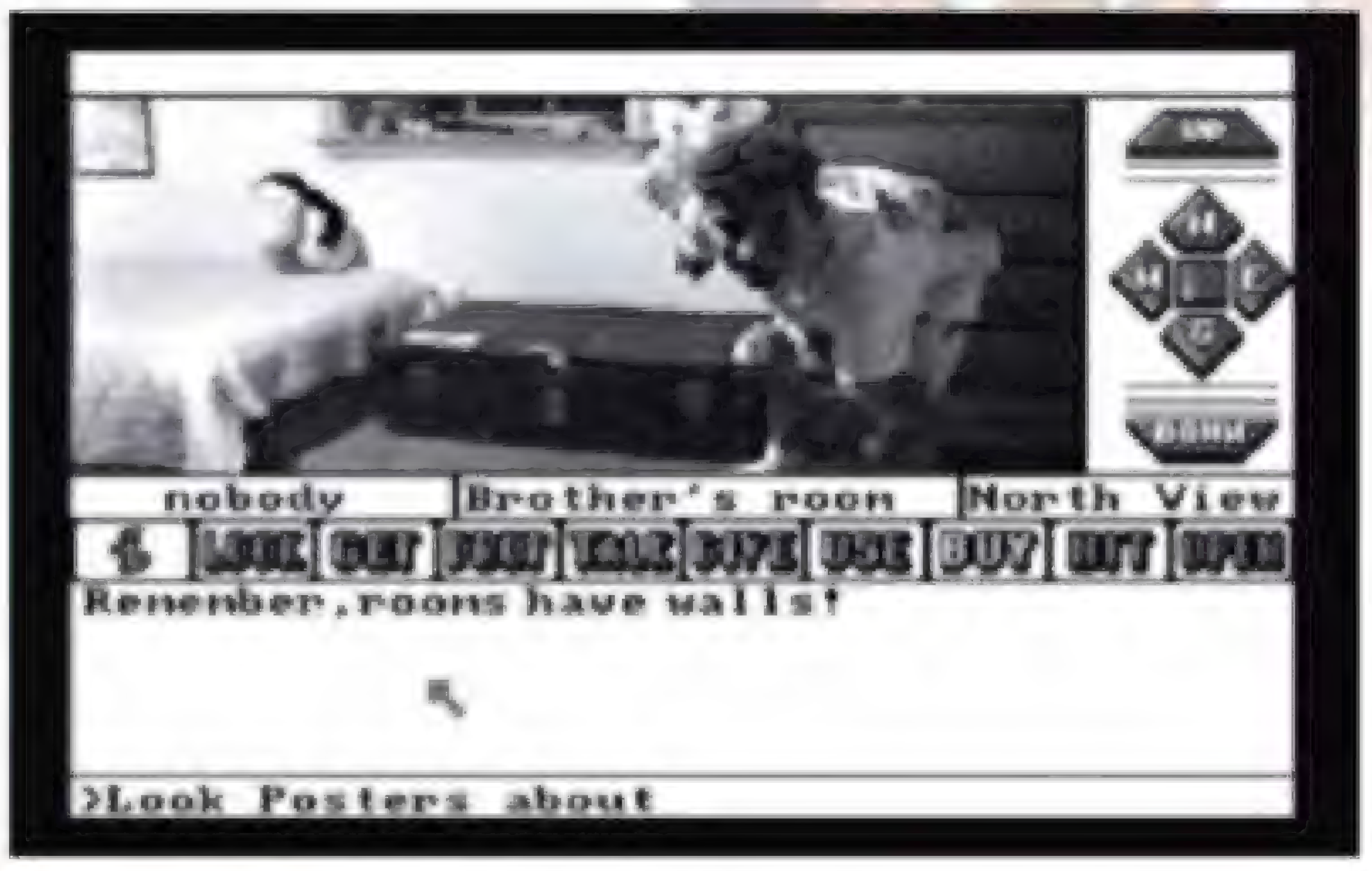
KEEP THE THIEF
Keef The Thief?
Look Near Edge of t
Do What?
You take a quick lo
turn around again.
JAK & DAXTER
CRASH BANDICOOT
RINGS OF POWER
BUC
Sol
30 Minutes per side
60

FROM THE ARCHIVES

RETRO GAMER DIGS UP THE FILES OF THE CLASSIC COMPANIES OF OLD

Naughty Dog

From two ambitious school friends to the most creatively significant PlayStation developer of today, Naughty Dog co-founder Andy Gavin talks us through the company's impressive evolution



nobody | Brother's room | North View

Renenber, rooms have walls!

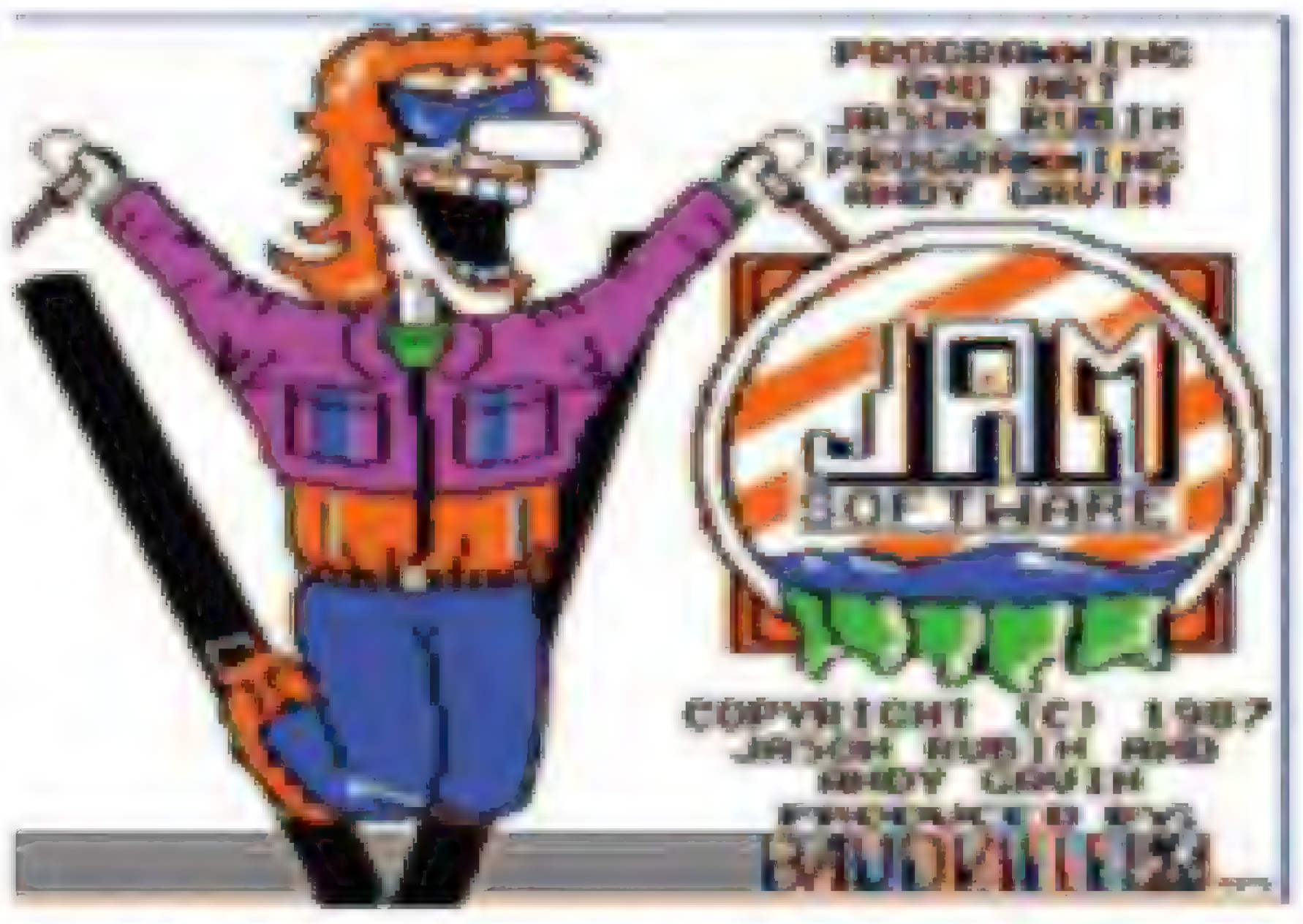
>Look Posters about

Whatever you were up to in school at age 12, it most likely didn't lay down your career path for the next 20 years. Naughty Dog co-founder Andy Gavin met his future creative partner Jason Rubin at this age in 1982 and, united by their fascination with programming on the Apple II+, the two learned how to make games through experimentation and collaboration. Naughty Dog is today renowned for its showstopping blend of cinematic storytelling with sharp gameplay mechanics, and the dizzying ambition of its two young co-founders led to those core principles.

"The first game I ever programmed was a crude RPG called *VE2* that I wrote first on my school Heathkit and then on my Apple II+," explains Andy. "It had you wander around a fantasy world and randomly encounter orcs, kobolds and the like. It wasn't so different than a single-player text *Dark Tower*."

When they met, Jason's games looked superior, yet they frequently crashed; Andy's, on the other hand, were better programmed, yet lacked a certain visual flair. These complementary skills encapsulated their creative dynamic. "Fundamentally we shared a very similar vision for game making (make it cool!) and brought overlapping but different skills to the table," says Andy. "I was more technical and he was more artistic, but we were both very motivated and energetic. We used to joke years later that it would be difficult for any would-be third partner to keep up, even if only on account of our intensity."

Andy and Jason finished their first commercial Apple II title, *Ski Stud*, when they were both 15 (they'd completed another unpublished title, *Math Jam*, a year before). The duo struck a publishing deal with Baudville worth $250 for *Ski Stud* – renamed *Ski Crazed* for political correctness' sake. Their chosen moniker at the time was JAM Software, which they kept until 1989.


PROGRAMMING AND ART JASON RUBIN
PROGRAMMING ANDY GAVIN
JAM SOFTWARE
COPYRIGHT (C) 1987 JASON RUBIN AND ANDY GAVIN
PRODUCED BY BAUDVILLE

» [Apple II] The title screen of *Ski Crazed* with Jam Software logo. Is it us or does he look a little like Crash Bandicoot?

☐ INSTANT EXPERT

***The Simpsons* creator** Matt Groening was a fan of the early *Crash* games – he said so on the DVD commentary to the episode 'Lisa Gets An 'A' ', which aired in 1998, where a *Crash*-like game called *Dash Dingo* forms a central part of the episode's storyline.

The original name for Naughty Dog, JAM, stood for 'Jason and Andy's Magic'.

Three of the *Crash* games rank in the 20 bestselling titles on PSone. The series shipped 30 million units on the console across four games.

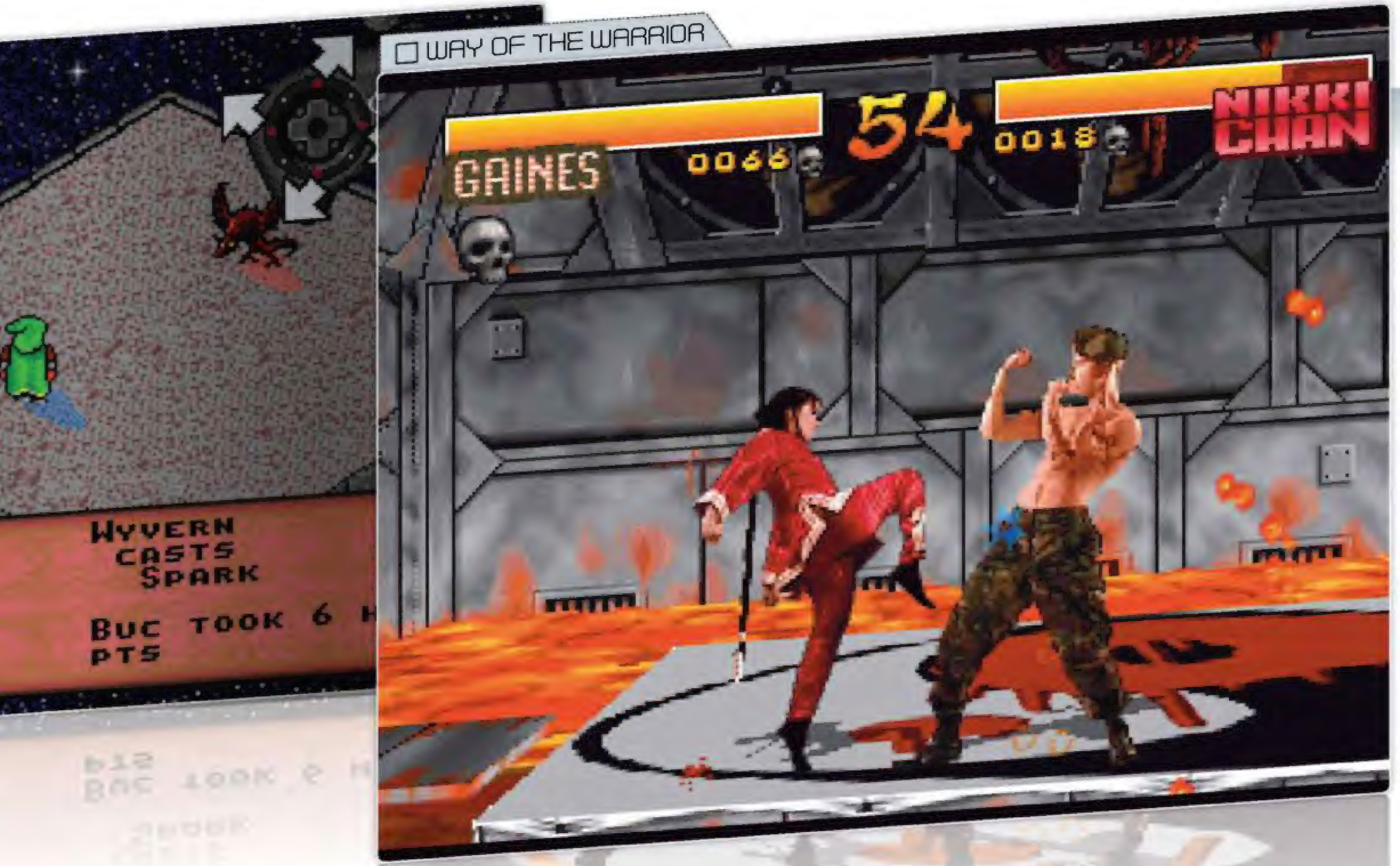
***Crash Bash* is** the only PSone *Crash* title that Naughty Dog didn't work on, being released after the studio moved on from the franchise. It was a shoddy vision of things to come for the character…

Andy and Jason sold their first published game, *Ski Crazed*, out of bags around Washington DC.

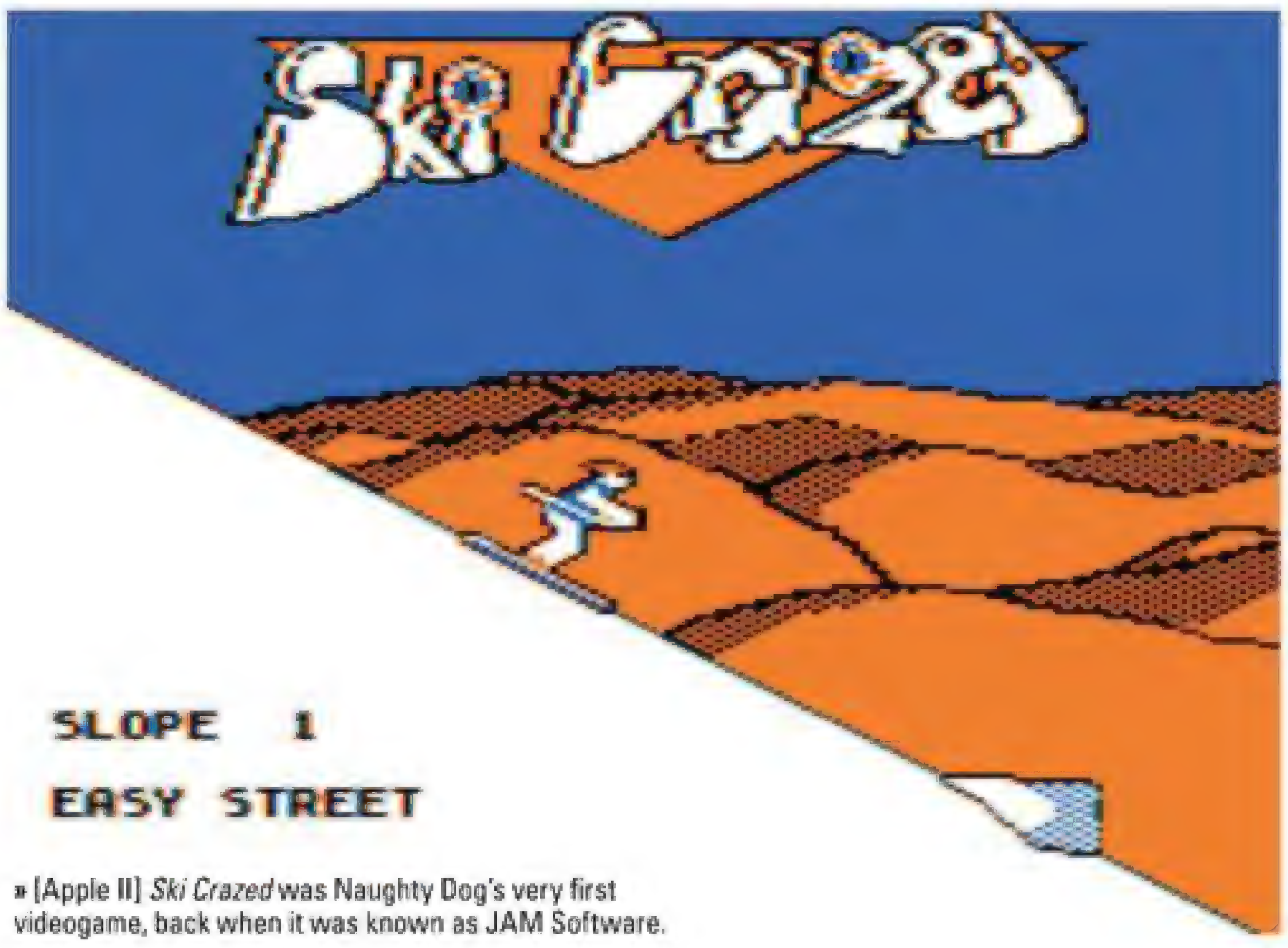
The duo spent $10,000 on renting floor space at E3 to market *Way Of The Warrior*. It paid off, as multiple publishers expressed an interest.

Greater success followed with adventure title *Dream Zone* on the Amiga, Atari ST and Apple II, which sold 10,000 copies and marked their final game to be published by Baudville. "The guys at Baudville were very nice and supportive," Andy explains. "But the company had poor distribution, minor league resources, and a laid-back approach. There was a lot of 'woah, duuuude.' Jason and I were far too ambitious to stick around in that environment."

While selling well, *Dream Zone* was still short of a smash for the pair. "Big hit isn't the word I would use, but it was much more 'real' and substantial than *Ski Crazed*. Signing with EA (right after *Dream Zone*) was a big confidence boost and we had to really take things up a notch (although there were many, many more notches until *Crash Bandicoot*!)."



> **“Sega had Sonic and Nintendo Mario, but Sony? We hoped to jump into that slot”**
>
> ANDY GAVIN ON CRASH BANDICOOT BECOMING A MASCOT



» [Apple II] *Ski Crazed* was Naughty Dog's very first videogame, back when it was known as JAM Software.

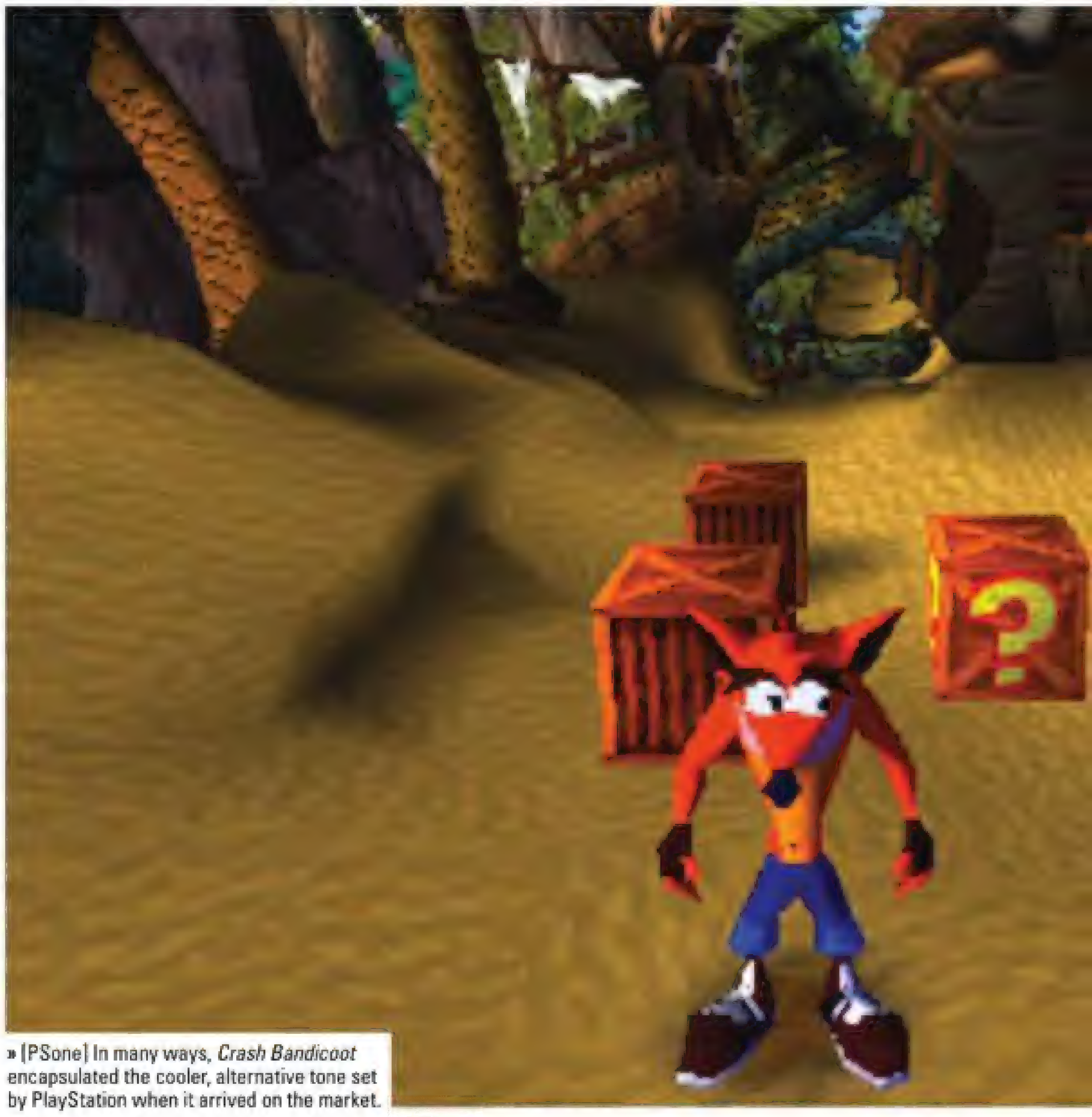
Remarkably, cold-calling an EA hotline led to their next gig, *Keef The Thief*, again for the Amiga and Apple II. "We just cold-called EA after *Dream Zone*. They asked for our games. We Fedexed them. They called back and offered us a deal! EA in those days was a lot of fun. Occasionally it was a hair bureaucratic, but Trip Hawkins was a very charismatic leader and an extremely fair guy. The whole company had an open and welcoming California feel."

EA was pleased with the success of *Keef The Thief*, landing the duo a deal for it to publish *Rings Of Power* on the Mega Drive. At this point, however, Andy and Jason were living in different parts of the country as they attended college, so it took three difficult years to get *Rings Of Power* to market. "A big problem with *Rings* was that it was designed as a PC RPG with an odd graphical gimmick (the three-quarter perspective) and then migrated to the Genesis. Really, we should have redone the graphics at that point as a tile-based scrolling world (like *Phantasy Star*). Plus, the sheer scope of the project and the lacklustre treatment from marketing left us a little burnt." EA chose not to reprint *Rings Of Power*, which disappointed the pair, leading to a brief hiatus for the nascent studio.

Yet it was Trip Hawkins and the promise of the 3DO that reignited their interest. Trip approached the pair, who were given free dev kits, which led to the creation of their self-funded beat-'em-up *Way Of The Warrior*. "We changed our whole philosophy with *Way*. Instead of doing the game we most wanted to make, we looked for an intersection between cool, manageable and popular. Fighting games were really hot in 1992-4 and when we started, no one seemed to be doing them on the 3DO. It seemed a perfect match.

"*Way* was a blast to develop. Jason and I lived together in this shitty apartment and worked on it 18 hours a day – but we had a lot of fun. The campy nature of both the kung fu genre and our take on it made the whole thing hilarious. I think that shows in the finished product."

This change in development philosophy governed the success of what followed for the studio. Universal Interactive published *Way Of The Warrior*, and the duo were ▶



» [PSone] In many ways, *Crash Bandicoot* encapsulated the cooler, alternative tone set by PlayStation when it arrived on the market.

▶ then signed up by Universal in 1994 to produce games on its LA lot, under the guidance of Mark Cerny. "The Universal relationship was a complicated but critical step in our evolution," Andy says. "In 1994-5 they really brought a lot to the table, particularly in the personification of Mark Cerny and in making a minimalist and relatively supportive environment. We learned how to scale to more than two developers and how to take every element of the production seriously."

On their extended car journey to Los Angeles, Jason and Andy conceived the idea of a 3D character-driven action game, informally named 'Sonic's ass', where the player would view the protagonist from behind while manoeuvring through the environment. This was the basis for *Crash Bandicoot*'s creation. We ask Andy if he felt he and Jason had generated an idea that was ahead of its time. "Actually, yes. Even as an idea, it seemed to offer a solution to the 'how to do platforming in 3D' dilemma. In practice, there were *a lot* of details to work out." As relayed on Andy's website, Naughty Dog was worried about the player's depth perception, the potential for dizziness and camera quality. No precedent had really been set, here – yet Universal was as keen on the 'Sonic's ass' idea as Andy and Jason themselves. Plus, *Mario 64* didn't exist yet, either.

The choice of format was easy. In a hardware market burdened by big failures and fragmented efforts from Sega, Sony offered a fresher start with the PlayStation. "It was really the best choice. The hardware was better. Sony seemed organised and perhaps most importantly, didn't have a pre-existing 'mascot' character. Sega had Sonic and Nintendo Mario, but Sony? We hoped to jump into that slot."

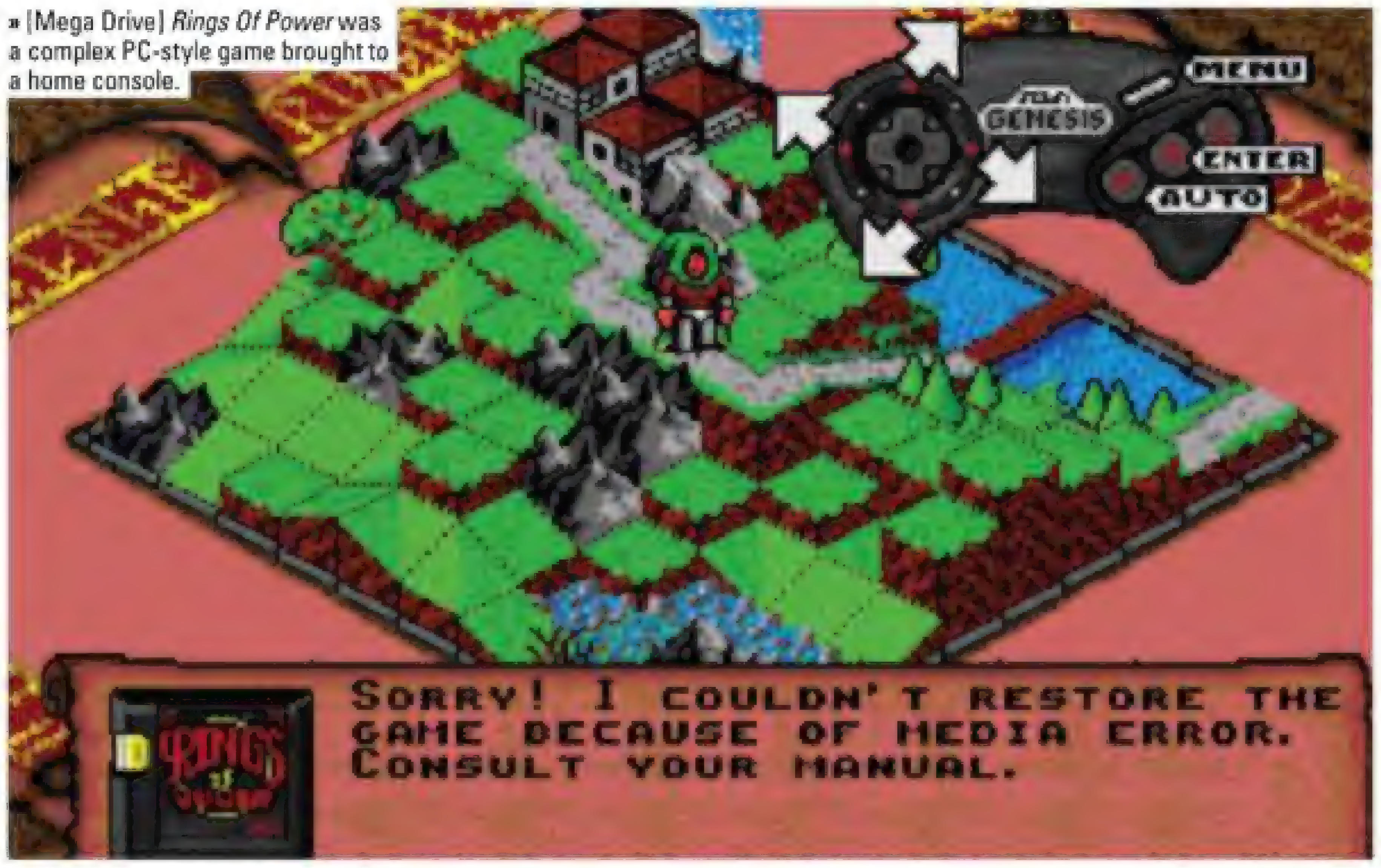
Jason and Andy toyed with the idea of a character called Willie The Wombat before settling on a bandicoot. A Warner Bros animation influence hung over the art direction and style of *Crash Bandicoot*, and Mark Cerny employed talented cartoonist Charles Zembillas to do character designs for *Crash*'s cast (Zembillas also created Spyro The Dragon for Insomniac, based on the Universal lot with Naughty Dog).

Released just three months after *Super Mario 64* in 1996, *Crash Bandicoot* was a sales smash. "Fundamentally, *Crash* offered a number of things," Andy says, when we ask about the key to its massive success. "First of all, the character and his world are great, and totally approachable. You can understand him at a glance, and he is highly inclusive. His combination of goofy positivity is very endearing. The world was also very appealing and consistently designed. Second, the gameplay is very fast and furious – if a little hard in *Crash 1*. It has a measured pace and rewards perseverance. When you get on a roll, it's pretty damn satisfying."

> **"I wouldn't call it a new engine, but we basically stripped out and rewrote every major system in the engine one by one"**
>
> ANDY GAVIN ON MAKING CRASH BANDICOOT 2

Crash Bandicoot may have conceptually stemmed from the phrase 'Sonic's ass', but Naughty Dog's character became an icon in his own right just as the blue hedgehog's best days were ending. While *Mario 64* became a milestone of action adventure games set in a 3D space, *Crash* offered an edgier counterpoint, encapsulating the cooler attitude that made the original PlayStation such a massive cultural event. There was something fresher in *Crash* and, like the Warner characters it was inspired by, you got the sense that its creators were speaking as much to adults as they were to kids. Naughty Dog had signed a three-game deal with Universal in

» [Mega Drive] *Rings Of Power* was a complex PC-style game brought to a home console.



SORRY! I COULDN'T RESTORE THE GAME BECAUSE OF MEDIA ERROR. CONSULT YOUR MANUAL.

TIMELINE

1982 ANDY GAVIN AND JASON RUBIN MEET AT SCHOOL AND BEGIN MAKING GAMES TOGETHER, AROUND THE AGE OF 12.

1985 AS JAM SOFTWARE, ANDY AND JASON'S FIRST TITLE, *SKI CRAZED*, IS RELEASED THROUGH BAUDVILLE ON THE APPLE II.

1994 NAUGHTY DOG BEGINS WORK ON THE *CRASH BANDICOOT* SERIES AT UNIVERSAL, AFTER SUCCESSFULLY RELEASING *WAY OF THE WARRIOR* FOR THE 3DO.

1999 THE DEVELOPER LEAVES THE UNIVERSAL LOT AND SETS UP SHOP IN SANTA MONICA, AFTER ITS THREE-GAME DEAL WITH THE COMPANY HAS ENDED.

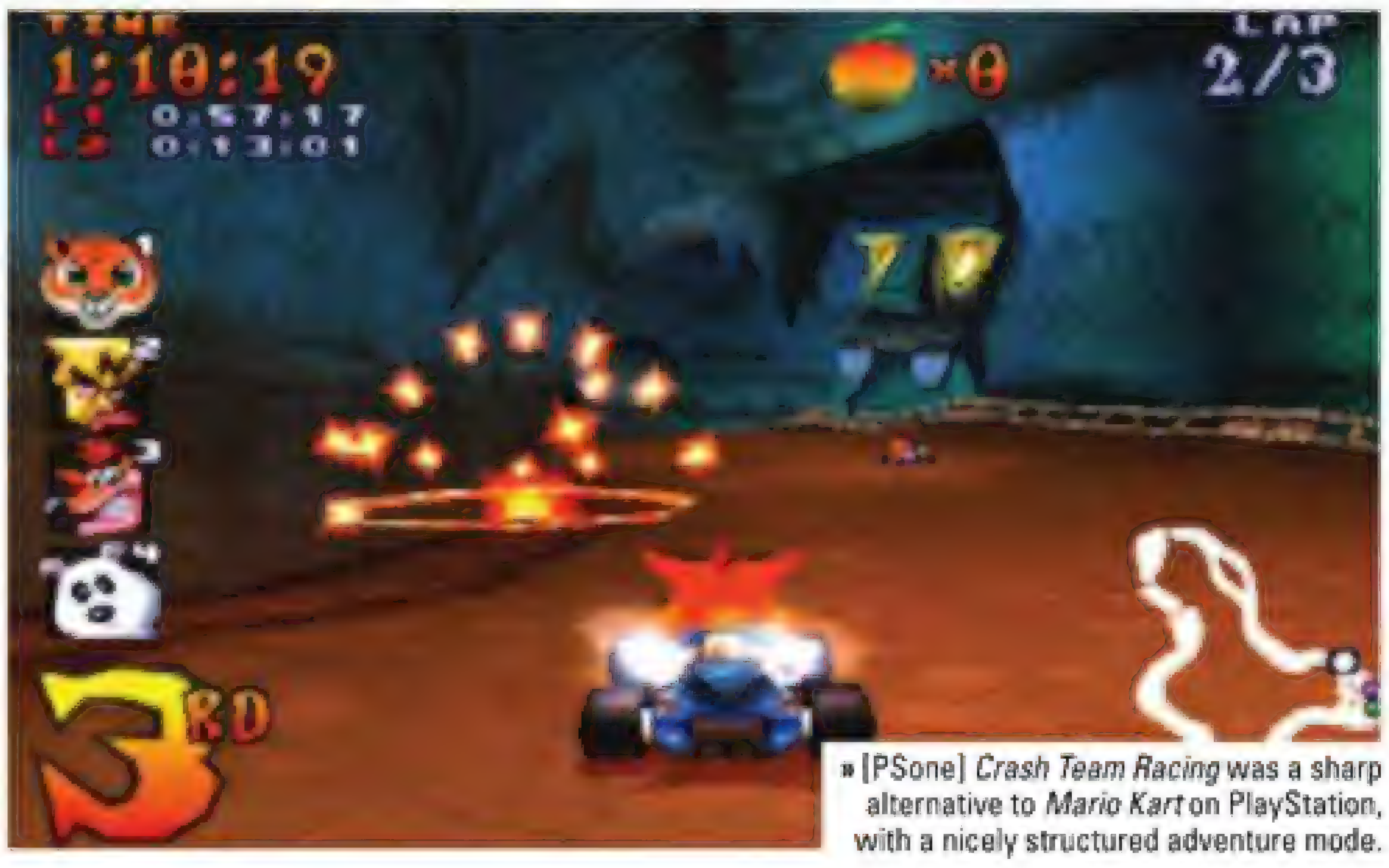
2001 NAUGHTY DOG IS SOLD TO SONY AS *JAK & DAXTER* BECOMES A SMASH HIT ON THE STILL RELATIVELY NEW PS2 PLATFORM.

2007 NAUGHTY DOG RELEASES ITS FIRST PS3 TITLE, *UNCHARTED: DRAKE'S FORTUNE*, WHICH IS PRETTY MUCH THE ONLY DECENT TITLE ON THE CONSOLE AT THE TIME, LEADING TO MASSIVE SUCCESS FOR THE DEVELOPER.

2009 *UNCHARTED 2: AMONG THIEVES* IS RELEASED TO MONUMENTAL CRITICAL ACCLAIM, AND RIGHTFULLY SO – IT'S A PERFECTLY PACED ACTION EXPERIENCE WITH THE BEST TRAIN-RELATED SET PIECE EVER.

2011 *THE LAST OF US* IS UNVEILED AS NAUGHTY DOG BECOMES A TWO-GAME DEVELOPER FOR THE FIRST TIME IN ITS HISTORY, CREATING A NEW IP FOR THE PS3 WHILE CONCURRENTLY WORKING ON THE *UNCHARTED* SERIES.

» Andy Gavin poses with one of his most famous creations, Crash Bandicoot.



» [PSone] *Crash Team Racing* was a sharp alternative to *Mario Kart* on PlayStation, with a nicely structured adventure mode.

1994, covering the next two releases: *Crash Bandicoot 2: Cortex Strikes Back* in 1997 and *Crash Bandicoot: Warped* in 1998.

Another unusual part of *Crash Bandicoot*'s commercial performance was its extraordinary sales in Japan, which were unusual for a Western-developed title. It truly was an international phenomenon – and the duo's confidence paid off. "We hoped for it, but I was still surprised it actually happened," Andy reflects on the success. "Enormously pleased though."

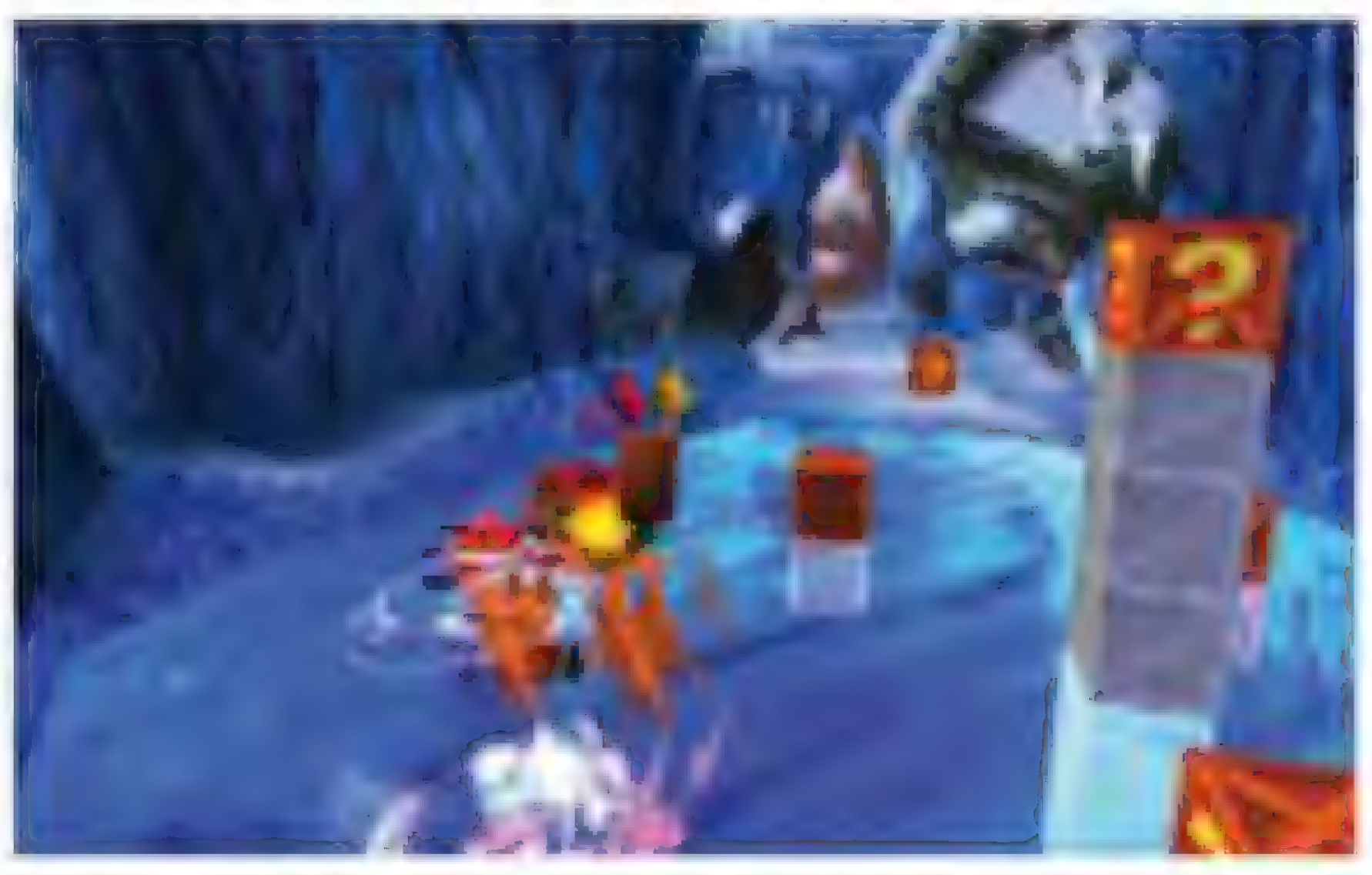
"We each had to step into the role of mentoring and advising an ever growing crew of developers," Andy explains about how his and Jason's roles changed as the studio expanded. "Fortunately, we hired really talented people so we also learned a lot from them, but we had to do a lot more producing and managing. On a technical level, Dave and I (the *Crash 1* programmers) combined some of our MIT engineering rigour with game practicality to do some really ambitious engineering on the level with other great (even non-game) software companies. This gave our games a leg up that, when combined with great design and awesome graphics, made them really stand out. A one-two-three punch."

The subsequent titles performed equally well thanks to this combination of qualities and allowed the Naughty Dog team to push the PlayStation hardware's visual capabilities further. "I wouldn't call it a new engine, but we basically stripped out and rewrote every major system in the engine one by one," explains Andy, when we ask him to discuss *Crash*'s first sequel. "*Crash 2* shares the same architecture, but everything was overhauled and improved!"

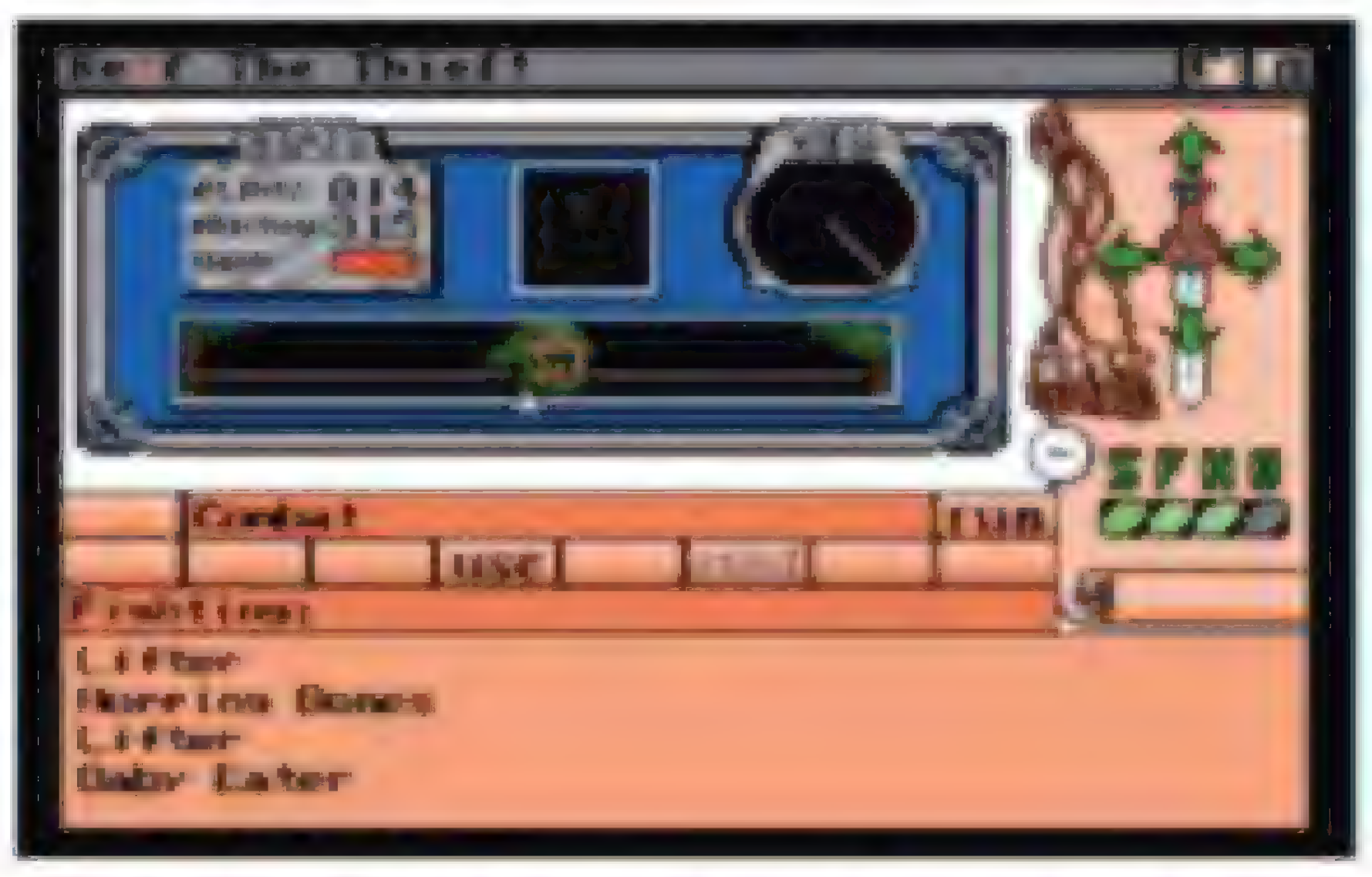
The series won more plaudits over the next two instalments, with critics praising the more varied level design, increased fidelity of the animation and the ambition that demonstrated healthy signs of Naughty Dog's maturity as a studio. "*Crash 3* wasn't so much a technical risk like *Crash 2*, it was just a death sprint. We did the whole game in nine months and built *so much* content. The engine itself got a few upgrades, particularly the tech for various kinds of water and the flying, but mostly it was levels, levels, levels and more levels!"

By this point, Sony was funding and publishing the *Crash* titles, and the two co-founders questioned the worth of Universal Interactive's input. As a result of choosing not to renew the latter's publishing deal, Naughty Dog apparently had to make *Crash 3* in the corridors at Universal. For its final *Crash* title, the high-quality karting spin-off *Crash Team Racing*, Sony negotiated the rights to use the licence since Naughty Dog was no longer on brilliant terms with its previous publisher.

"Mark Cerny was there the entire time we worked with them and we had a great relationship with him," recalls Andy. ▶

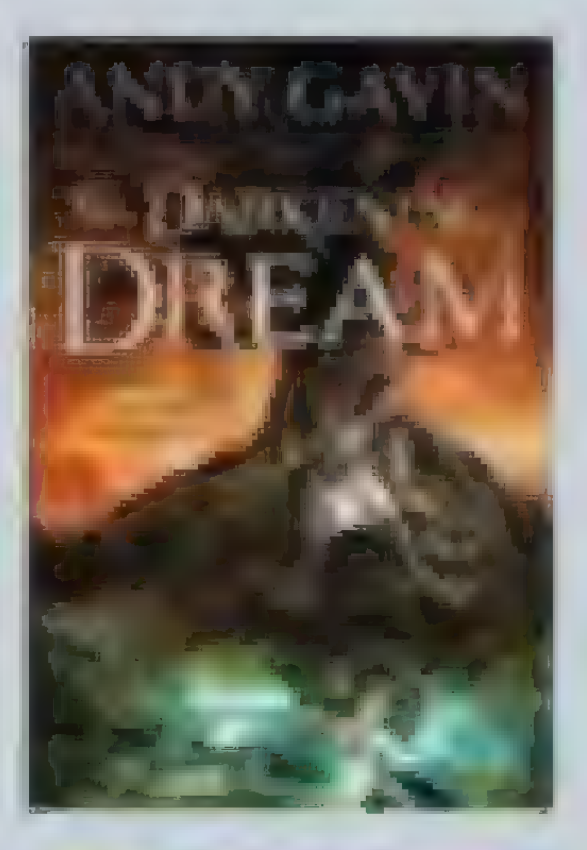


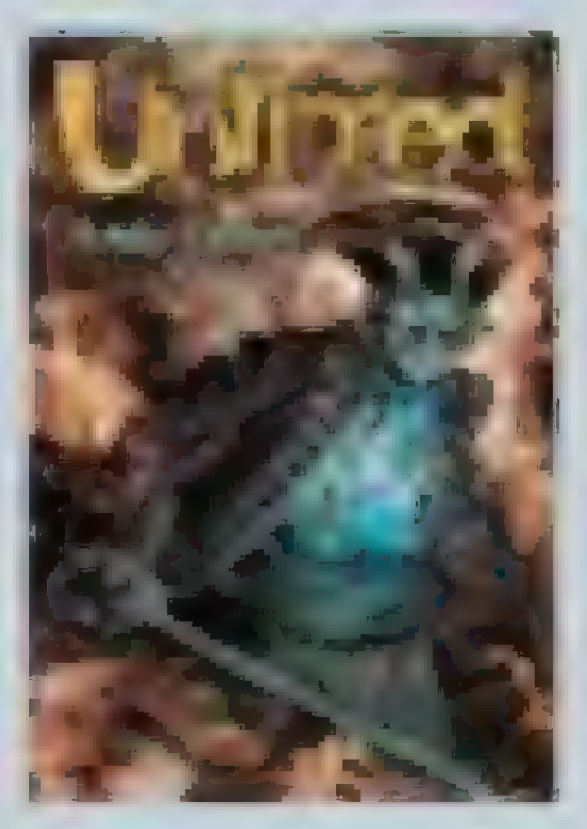
» [PSone] *Crash Bandicoot 2* started to have some real fun with the variety in level design.



» [Amiga] A call to the Electronic Arts hotline led to *Keef The Thief*. *Rings Of Power* eventually followed.

☐ WHERE ARE THEY NOW?





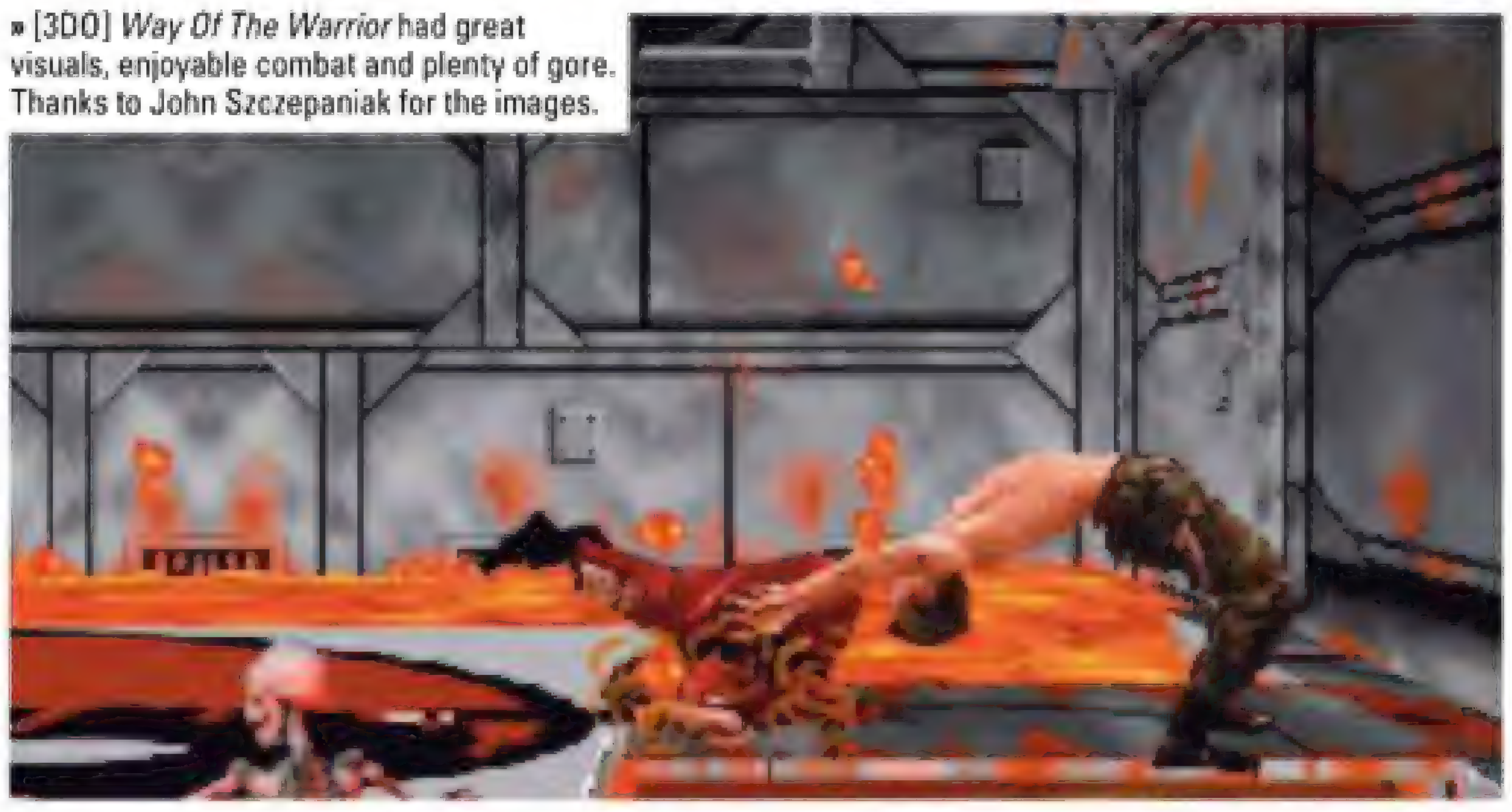
Andy Gavin

Andy co-founded the company Flektor with Jason Rubin after leaving Naughty Dog, creating a web program that allowed for easy online content mash-ups that quickly grew after its 2007 launch. The duo sold it to Fox in 2009 for north of $20 million, just as the latter was attempting to move into social media territory with MySpace. Andy and Jason left soon after. Since then, Andy has written two paranormal fantasy novels, *Untimed* and *The Darkening Dream*, and blogs extensively about a variety of topics at **www.all-things-andy-gavin.com**, where he often answers questions about the series he's worked on. He also does some rather entertaining write-ups of episodes of *Game Of Thrones* and documents his memories of working at Naughty Dog, with contributions from co-founder Jason Rubin.

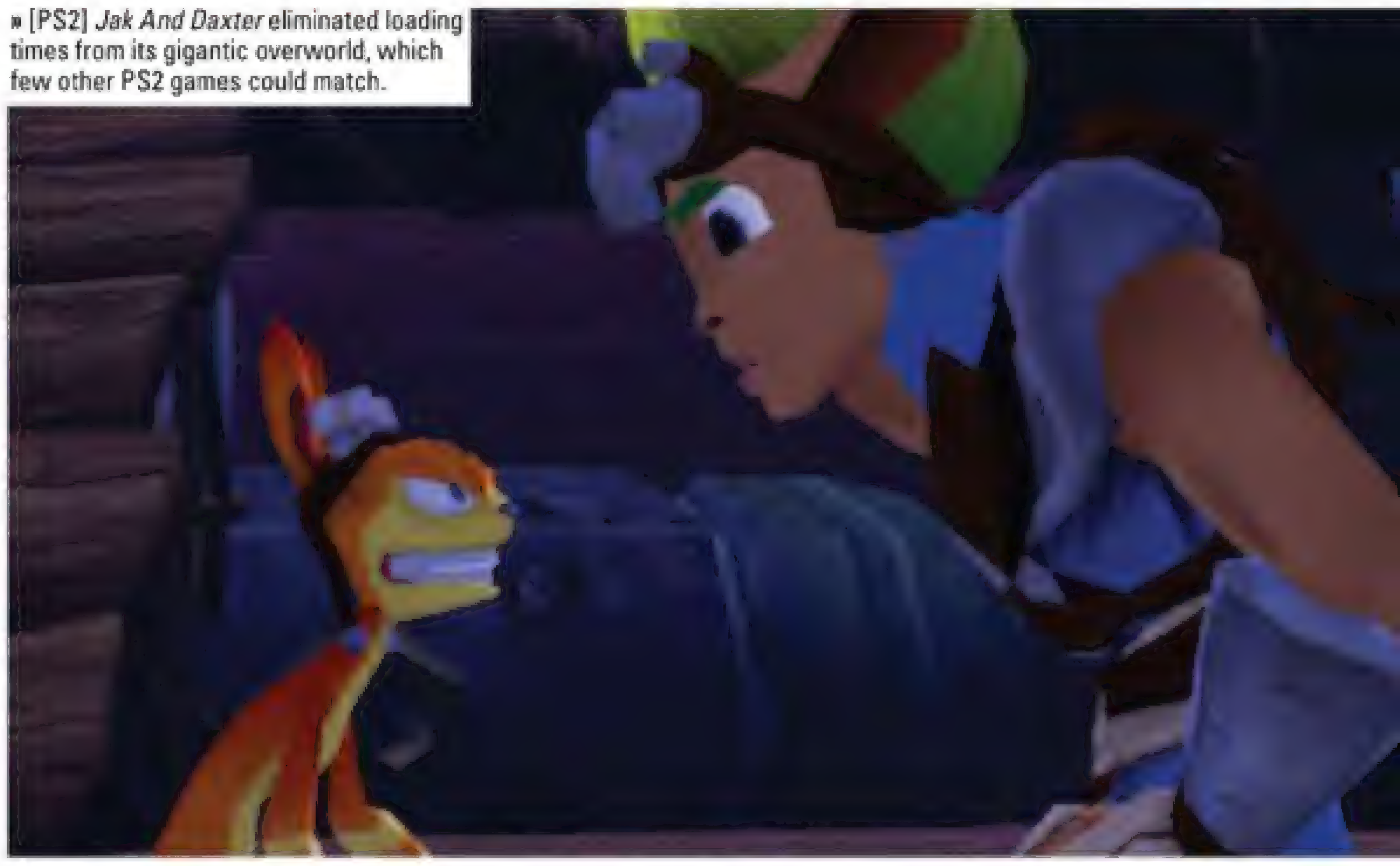
Jason Rubin

Working on Flektor with Andy, Jason Rubin also ventured into comic book writing, creating *The Iron Saint* and *Mysterious Ways* through his company MORGANrose, published by Aspen Comics and Top Cow respectively. He also co-owned a mobile games studio with Andy known as Monkey Gods, which Jason described as an 'experiment'. Jason also recently became president of THQ, which, despite his best efforts to save the company, went bankrupt and had its assets sold off earlier this year. His main focus as president was focusing on stronger core titles, and it seemed like the company wasn't too far off a turnaround, though a few poor releases prior to his leadership left THQ with a lot of financial shortcomings. Anecdotally, we've heard positive things about Jason's leadership at the now-defunct publisher.

» [3DO] *Way Of The Warrior* had great visuals, enjoyable combat and plenty of gore. Thanks to John Szczepaniak for the images.



» [PS2] *Jak And Daxter* eliminated loading times from its gigantic overworld, which few other PS2 games could match.



» [PS3] The *Uncharted* series has been a massive success for both Sony and Naughty Dog. We're still hoping for a fourth PS3 adventure.

» [PS3] The *Jak And Daxter* series was recently rereleased on Sony's PlayStation 3 in a new HD collection. It's a pretty solid compilation.

» [PS2] *Jak II: Renegade* made noticeable moves towards modern trends in 2003 when it took the series into *GTA*'s sandbox territory.

"Our relationship with the 1997-1999 management was actually cordial, but we didn't always think they brought a lot to the table. Around the time we were separating, the whole management changed over there again (Jim Wilson came in) and we never really got to know that crew. The company did have a pretty flawed corporate culture, one that didn't always encourage fair play. They stopped paying us… we had to sue them (we eventually won everything)."

After Universal, Naughty Dog set up shop in Santa Monica, and by this point its relationship with Sony was exceptionally strong. Andy says that the developer's choice of hardware was more down to opportunity than any emotional ties – yet in 2000, after beginning work on their first non-*Crash* title in six years, Andy and Jason sold Naughty Dog to Sony, in a move motivated by the console maker's desire to own its next big intellectual property.

"We had a great relationship with Sony from 1996 on," Andy says. "By 2000 when we were discussing the merger, we were not only exclusive in practice but chummy with all levels of the company, from junior producers and QA managers to Kaz Hirai… It is/was a great company, with bright motivated people, a lot of energy, a determination to do things well, and an ethos of fairness and honesty. Companies are like people, and any that has a lot of these things going for it is a rarity."

Jason was confident that Naughty Dog could have functioned independently, but being absorbed by Sony allowed the team to focus on making games. The studio was one of the first to obtain a PS2 dev kit, though working with the new hardware didn't come easy, according to Andy. "The PS2 had a very steep learning curve. It was a great machine, but to milk all the power out of it you had to migrate a lot of code onto the vector units. It was vastly more complicated than the PSone. Naughty Dog was one of the few teams that thrived in those early PS2 days because the quality of our programmers and technical artists was so high. Lesser tech guys got dusted."

» [PS2] *Jak And Daxter* soon turned into a trilogy for PlayStation 2 owners.

The team's new title, 2001's *Jak And Daxter*, marked an ambitious turn from the linear platforming of *Crash*. A Nintendo-inspired platform/adventure, it would feature a seamless open world with no loading screens, which caused numerous headaches for Andy and his team. "Oh, God. The seamless loading was hard. We had been heading in this direction with *Crash*, which featured a very sophisticated streaming system and extremely short load times (3-4 seconds!), but with *Jak And Daxter* we had this early mandate to eliminate loading entirely. It was hard, but very cool in a subtle way. Very few games do it even now."

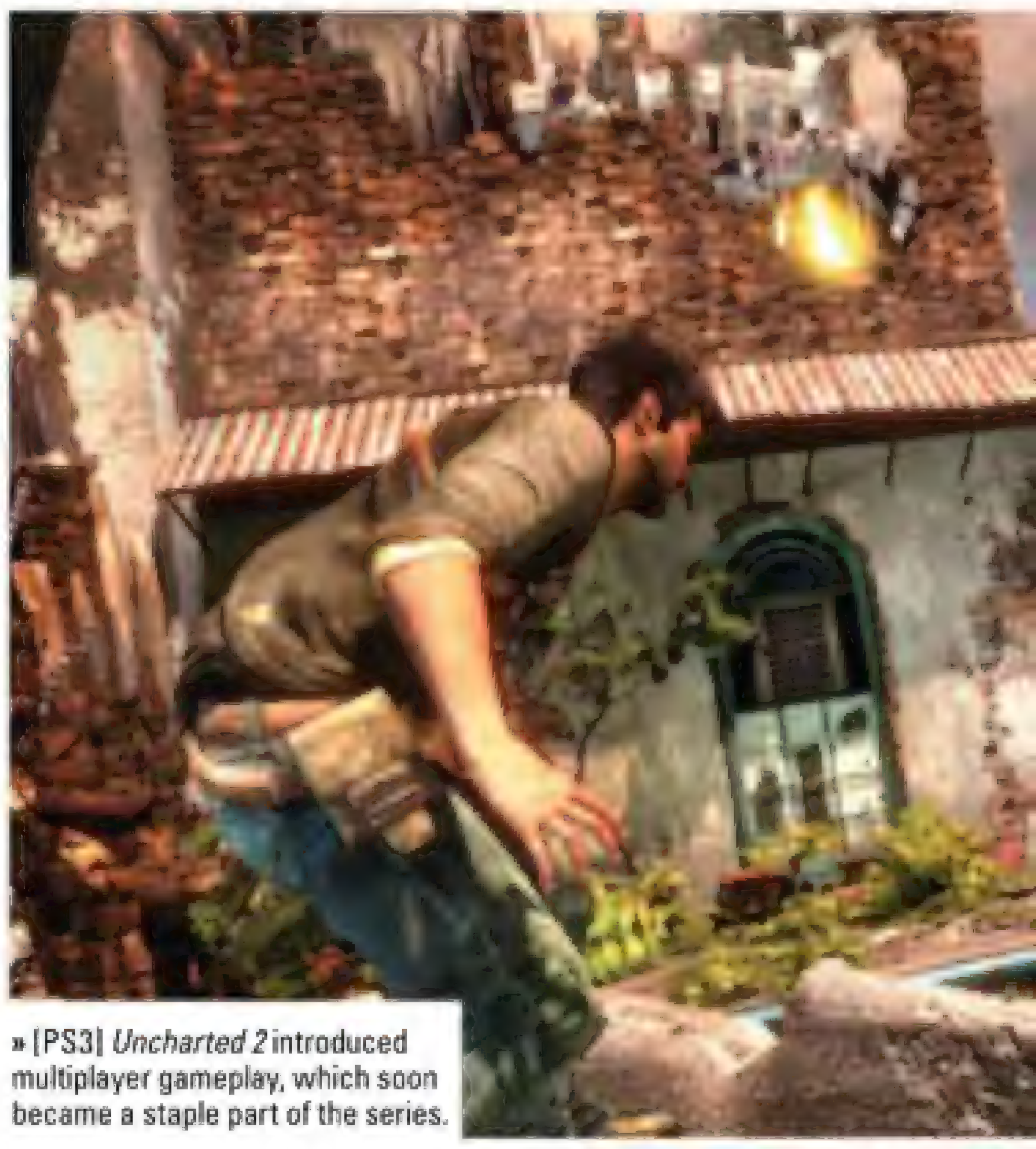
The Nintendo pastiche was deliberate, too. "There was a lot of *Mario 64* / *Banjo* influence in *Jak 1*, as they were the most modern (and best) examples of platforming during the 1999-2000 period when *Jak* was under design."

Jak was another huge hit on PS2, if not quite as commercially gargantuan as *Crash*, and once again gave the PlayStation brand

> **"Focus on characters, trifecta of art, gameplay and technology, and massive polish and attention to detail"**
>
> ANDY GAVIN ON NAUGHTY DOG'S DESIGN PHILOSOPHIES

☐ WHATEVER HAPPENED TO CRASH BANDICOOT?

Owned by Activision now after it merged with Vivendi several years ago, Crash Bandicoot is MIA while his former stablemate Spyro the Dragon is part of the plastic-shifting phenomenon that is Skylanders. "He isn't really anywhere, which is sad, as Crash is a great character," reflects Andy on Crash's current status. That special quality that defined Naughty Dog's *Crash* titles was lost in the first multiplatform release, *The Wrath of Cortex*, in 2001, which mostly rehashed the ideas of previous *Crash* titles. It was published during the same holiday period as *Jak And Daxter*, and naturally it didn't compare too well. From there, the *Crash* series got progressively worse, though the last instalment, *Crash Of The Titans*, wasn't completely awful. The magic's just been lost a little bit from the series – there's never been a drive to innovate or push the 3D platforming genre forward with *Crash* outside of Naughty Dog's hands, which defined the original games' success.

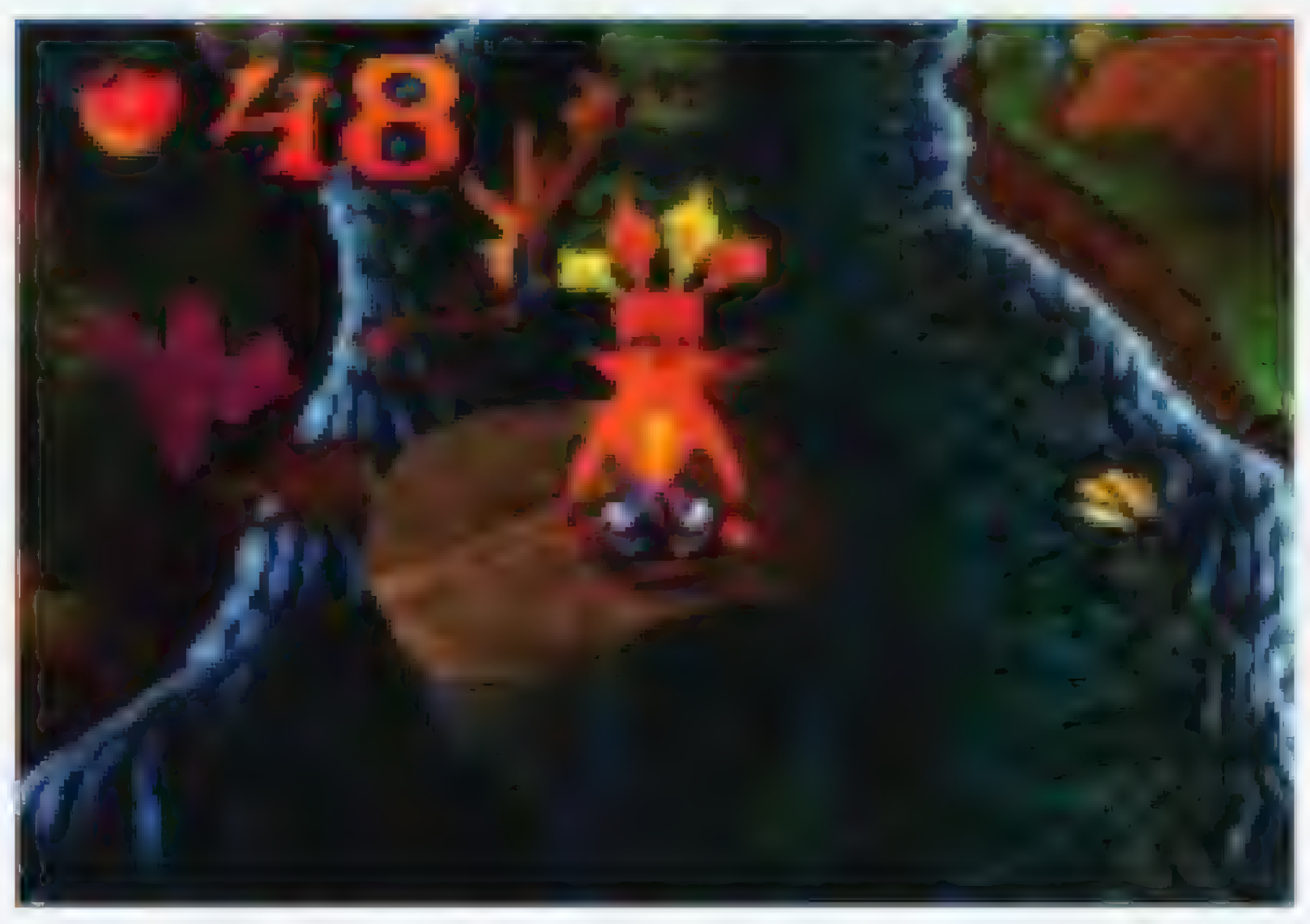


» [PS3] *Uncharted 2* introduced multiplayer gameplay, which soon became a staple part of the series.

DEFINING GAMES

Way Of The Warrior

As a viable *Mortal Kombat* alternative on the struggling 3DO, *Way Of The Warrior* was arguably the best known of Naughty Dog's pre-*Crash* titles, with a sense of irony that its contemporaries lacked. This marked the start of the studio's relationship with Universal, which turned out to be extremely fruitful. *Way Of The Warrior* is notable for its gory visuals, diverse characters (portrayed by friends and relatives of the staff) and impressive combo attacks. It features a particularly aggressive soundtrack too, with many of the tracks coming from White Zombie's album *Le Sexorcisto: Devil Music, Vol 1*.

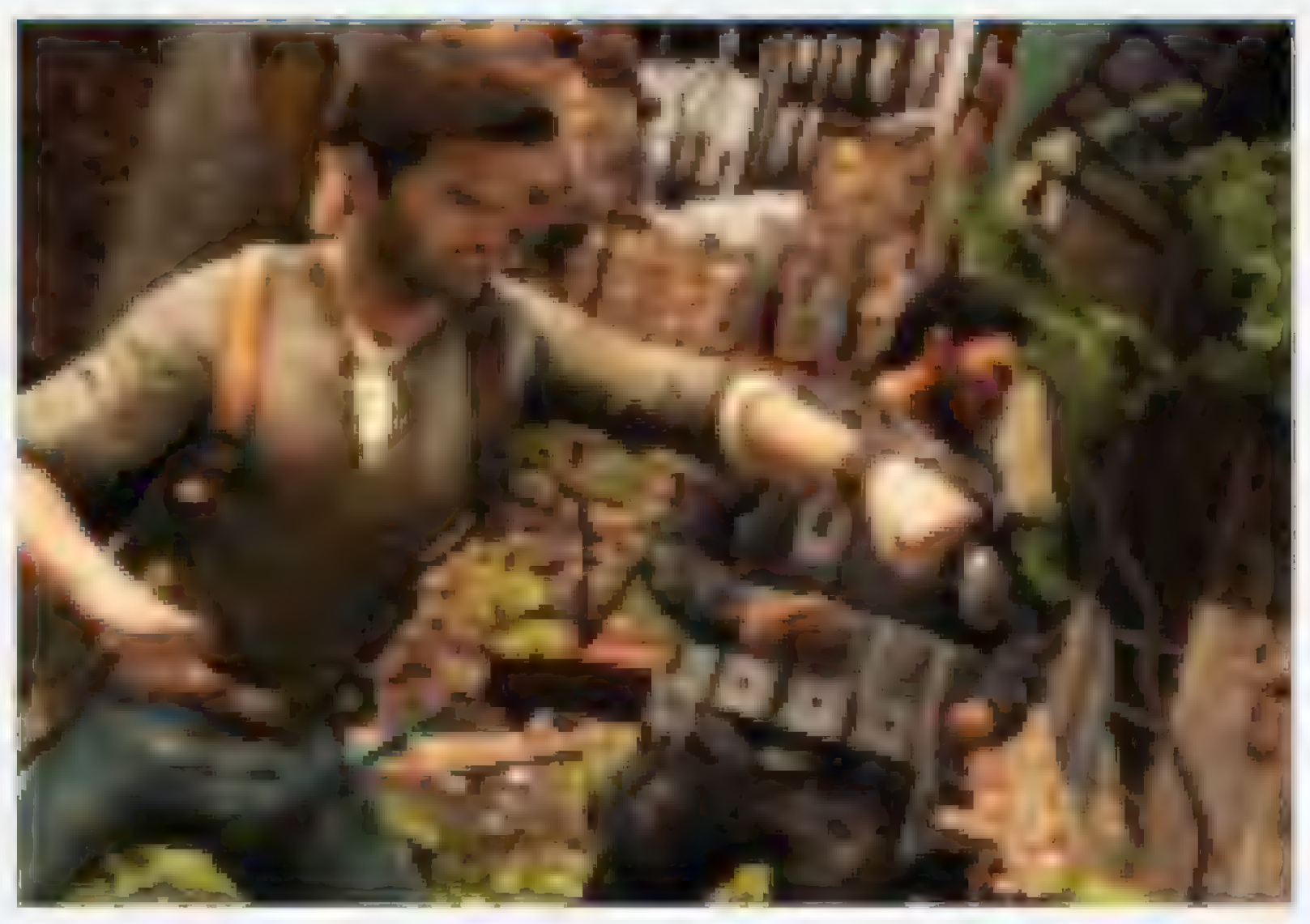


Crash Bandicoot

Arriving on a console without a mascot, *Crash Bandicoot* posited its own solution for the 3D platformer genre that contrasted strongly with Nintendo's ideas in *Mario 64* – Crash was an icon with the complete package from the start, with strong character designs and instantly gratifying platforming mechanics in a game packed with smart level design. *Crash Bandicoot* proved to be a watershed moment for Naughty Dog and, as *Sonic* had done with Sega's Mega Drive before it, helped convince gamers that Sony's new cool console was the machine to own. A superb evolution of the platform genre that everyone needs to play.

Jak And Daxter: The Precursor Legacy

Bearing some resemblance to the *Crash* series in its feel, *Jak And Daxter* exchanged linear levels for a gigantic environment filled with 101 various challenges. *Banjo Kazooie*, *Zelda* and *Mario 64* all inspired its ambitious design, which illustrated Naughty Dog's ability to create a large, cohesive world to rival Nintendo's own properties. *Jak*'s persistent game world and near seamless loading times showed off Naughty Dog's technical prowess, while the clever pairing of the silent Jak and motormouth Daxter was a testament to the studio's keen eye for strong characterisation.



Uncharted 2: Among Thieves

While *Uncharted: Drake's Fortune* was a highly enjoyable PS3 debut, its ambitious sequel bettered it in every way. It built on the original game's *Indiana Jones* pastiche, setting players up with a gauntlet of ever-escalating set pieces and a rip-roaring tale, marking a new high in pacing for third-person action-adventure games. It's a highly engaging cinematic romp, and still looks incredibly cutting edge. It's also notable for introducing for bringing a slick multiplayer offering to the popular series. It remains Naughty Dog's best title to date, as well as a generation-defining release for the PlayStation 3.

» [PS3] *The Last Of Us* is looking like it's going to be the last must-play PlayStation 3 release. We can only imagine where Naughty Dog goes next.

» [PS3] If you crave great characters and cinematic action then Naughty Dog games should be your first port of call.

a mascot that it needed. The series moved into an open-world paradigm with 2003's *Jak II: Renegade*, which was clearly a product of its time in a post-*GTA III* world. "We wanted to show that we could go open world with the best of them!"

By the time the vehicle-centric *Jak 3*'s release came around in 2004, the co-founders' contracts were up, and Andy and Jason felt confident about leaving Naughty Dog in the hands of its veteran staff, headed up by Evan Wells and Christophe Balestra; their departure was as much about allowing these new leaders to develop as the desire to have a bit of time off for other projects. "Not only has Naughty Dog survived for 8.5 years since we left, but it has thrived and grown," Andy says. "Evan, Christophe and the whole team over there continue to show their enormous talent and dedication. The games are new, cutting edge and yet still very much Naughty Dog games. They draw from the same basic philosophical strategy we developed in the *Crash* era: focus on characters, trifecta of art, gameplay, and technology, and massive polish and attention to detail."

The *Uncharted* series does indeed embody those ideals and, particularly with its barnstorming second instalment released in 2009, shows how Naughty Dog's direction has weathered time effectively and allowed it to progress effectively as a studio. *The Last Of Us* is its latest release, a post-apocalyptic thriller that touches upon darker subject matter than we're used to seeing in the developer's releases, which again seems like a natural part of its evolution.

What's reassuring about Naughty Dog's enduring reputation, then, is that those principles outlined by Andy and Jason, back when they made *Way Of The Warrior*, have survived until today – Naughty Dog creates big, fun games with a credible mass appeal, a balance that few developers can equal with any great conviction. Yet it stemmed from two confident friends teaching each other how to make games, and a mutual loyalty leading to unexpected levels of hard-earned success.

"They feature big integrated worlds, gameplay-first storytelling and all the above stuff," says Andy, discussing what defines a modern Naughty Dog game. "That's what makes them Naughty Dog games. Starting with *Jak 1* and moving into *Jak 2*, we really focused on trying to make the best 'story you play' possible. *Uncharted 2* and *3* take this to whole new levels. The 2004-2013 steps have been just as challenging as the 1994-2004 steps. Same dance, different moves."

Naughty Dog's *The Last Of Us* was released on PS3 in 2013. Andy Gavin is the author of *The Darkening Dream* and *Untimed*. Find out more at **the-darkening-dream.com** and **untimed-novel.com**.

THE HISTORY OF STREET FIGHTER

FROM HUMBLE ORIGINS TO A WORLD-CONQUERING FIGHTER

If there's one franchise that has changed the shape of gaming as we know it more than any other, it has to be *Street Fighter*. Having a friend or rival watch over your shoulder as you set a new high score and keenly input your initials (most likely in the form of some kind of shorthand profanity) is great and all, but having them eat humble pie from a plate made of your own skill? Priceless.

Street Fighter may not be solely responsible for the concept of competitive gaming, nor was it the first game to introduce the idea. But by allowing us to select a character we could identify with and make work, the *Street Fighter* series without doubt forged many of the tenets by which we currently (and probably always will) go head-to-head with each another under the watchful eye of a digital referee.

And *Street Fighter* has done so much more for us, too. It's given us the perfect way to vent frustration with the real world by wailing on virtual schmucks at the end of a bad day. It's given us a forum in which to chase our ideals of developing gaming skill, while so many other games just want to take us on a nice "experience" holiday or patronise us until we can't see straight. And it has defined, more than any other series, the rules under which modern gaming competition takes place.

It came from nowhere, another also-ran fighter somehow paving the way for a game and a franchise that would alter the gaming landscape forever, something that would shape us as gamers and change our perceptions of what games could and should be. Call it hyperbole if you want, but we defy anyone to name a more influential or important game than *Street Fighter II* – some on a par, perhaps, but none that could claim to have had a quantifiably greater and longer-lasting effect on gaming as we know it.

But it's an odd tale all the same, one where an innocuous fighter is somehow the basis for a sequel that takes the world by storm and spawns a million imitators. Later follow-ups proved *SFII*'s quality to be no fluke; Capcom's success story seemingly wrote itself as the franchise evolved. And while *Street Fighter II* might be the one game that stands out as defining the franchise, each chapter has its own story to tell and its own relevance in the grand scheme of things.

The original's sketchy special move commands; the sequel's unexpected brilliance; *III*'s unwavering determination and peerless quality despite a dying market; *IV*'s ballsy rejuvenation of a genre long thought dead. Hell, all this rags-to-riches story is missing is a John Parr soundtrack and a kickass montage. Join us them as we retread the steps that took Capcom to unexpected greatness and established a franchise to be forever remembered as one of the classics. Not many games make it to 25 and still look so spritely, after all...

> “While Street Fighter II stands out as defining the franchise, each chapter has its own story to tell”

STREET FIGHTER

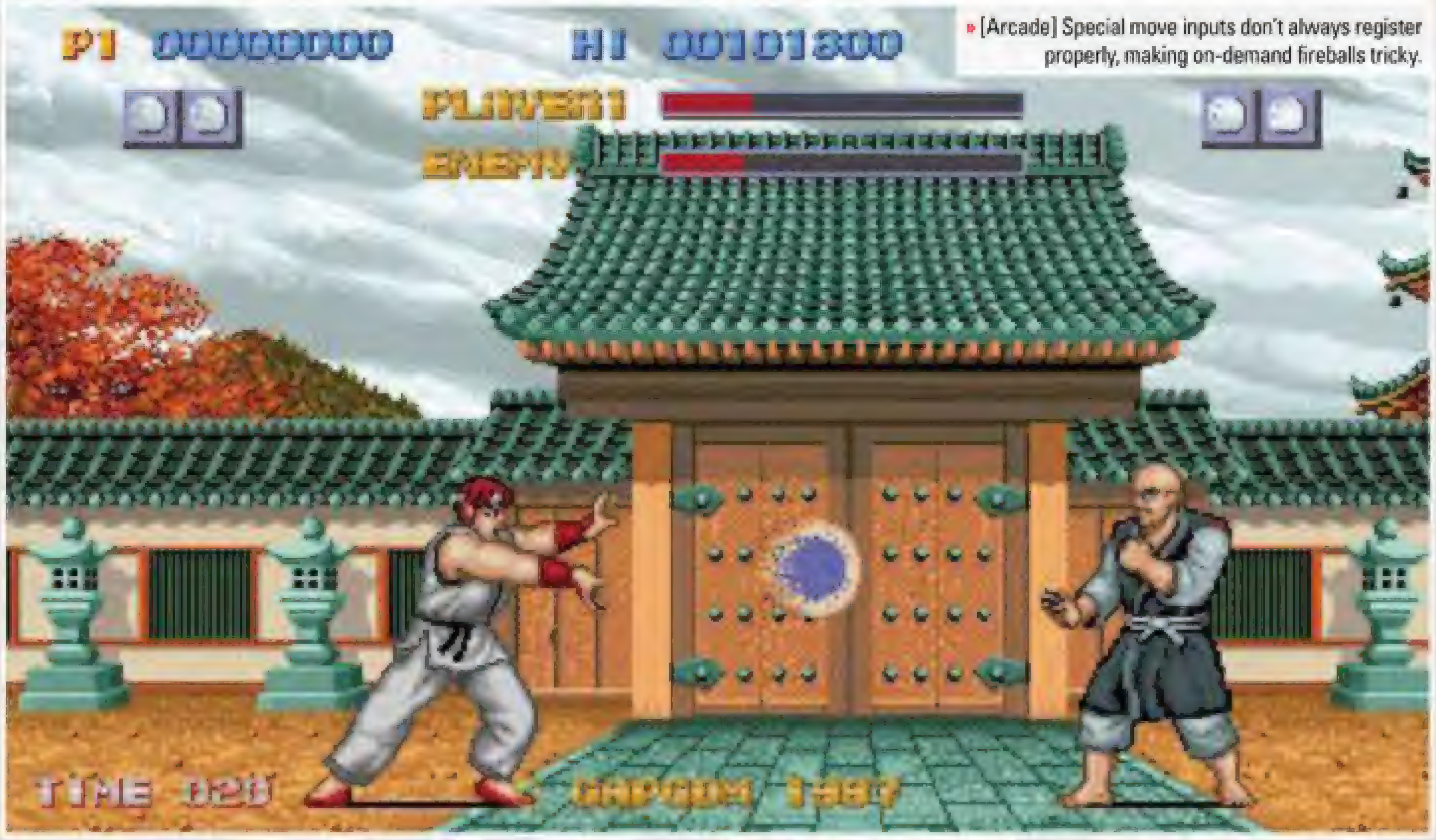
HUMBLE BEGINNINGS

If it's true that the mightiest of oaks can grow from the smallest acorn, it's no great surprise that the unstoppable force that is the *Street Fighter* franchise came from something so microscopic in importance.

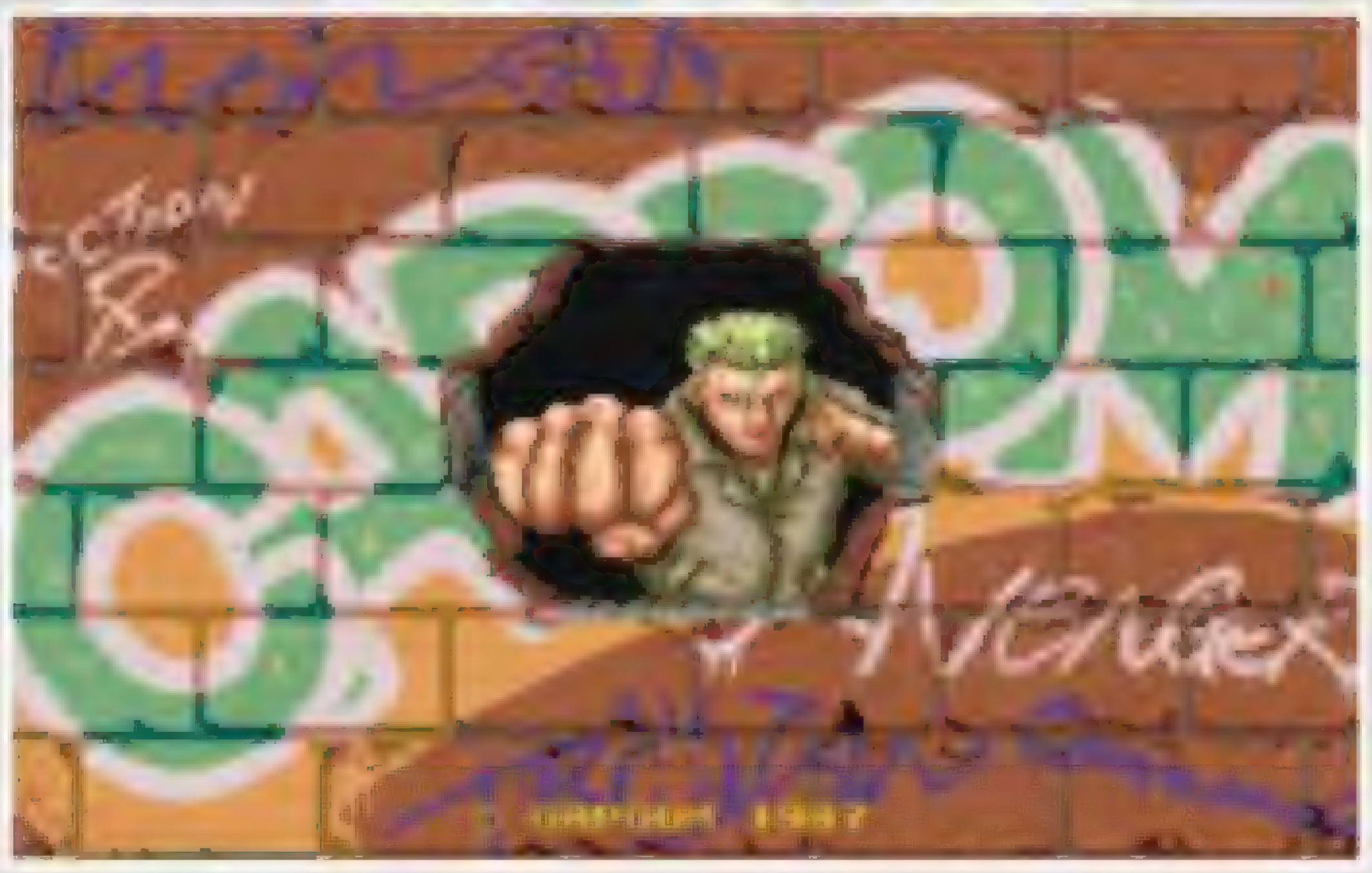
Street Fighter was just one of any number of competitive fighting games to emerge in the mid-to-late Eighties, the only things really separating it from the rest of the pack being little more than gimmicks – a deluxe version of the cabinet featured large pressure-sensitive buttons rather than the simpler version's six-button layout, while electing not to inform the player about the existence of Ryu's special moves gave the game an air of mystery and excitement. The deluxe cabinets were later phased out as, predictably, heavy-handed use in the search for the strongest attack led to damage, though the standard six-button system employed by many modern fighting games started life here.

While the game itself was somewhat unremarkable in many respects, it did help launch the careers of some big names in Japanese development. The production and direction team of Takashi Nishiyama and Hiroshi Matsumoto would go on to join SNK and work on rival franchises *Art Of Fighting* and *Fatal Fury*, while Mega Man legend Keiji Inafune got his break at Capcom drawing up character portraits for *Street Fighter*.

The game proved fairly popular despite its simple premise, later being ported to just about every major home computer system at the time to mixed effect. Tiertex, the studio responsible for handling the ports, even went so far as to release its own unofficial sequel in the form of *Human Killing Machine*, a fighter of questionable content based on the same engine as the version it developed for the ports of Capcom's game. Cheeky, perhaps, but the 8-bit era was hardly a hotbed of morality…



» [Arcade] Special move inputs don't always register properly, making on-demand fireballs tricky.



» Joe gets a little extra screen time in the game's intro, punching through a wall to set the scene for the fighting extravaganza. Yo, Joe!

> "Just one of many games looking to further the one-on-one fighter"

THE CHALLENGERS

Ryu

Always searching for stronger opponents in order to develop his skills, Ryu embodies purity – while others seek fame and fortune, he seeks only to better himself. The face of the *Street Fighter* franchise and present in every single game to carry the name so far.

Ken

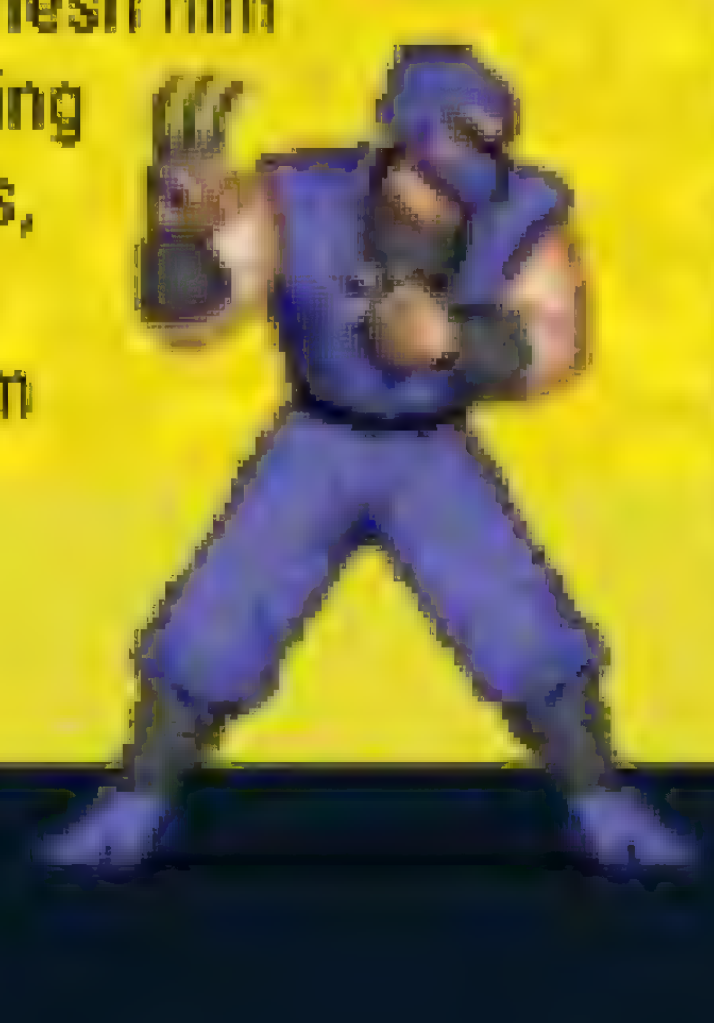
Ryu's sparring partner and friend, Ken Masters started out as an exact copy of the Japanese poster boy (and one that only appeared as player two's character in versus mode) but later developed his own traits. Fear his flaming Dragon Punch, and spamming thereof.

Retsu

A disgraced Kenpo instructor, Retsu is the first hurdle on your quest to winning the tournament. It's not hard to see why the bald guy hasn't appeared in another game since – he goes down easy and doesn't have much in the way of special attacks.

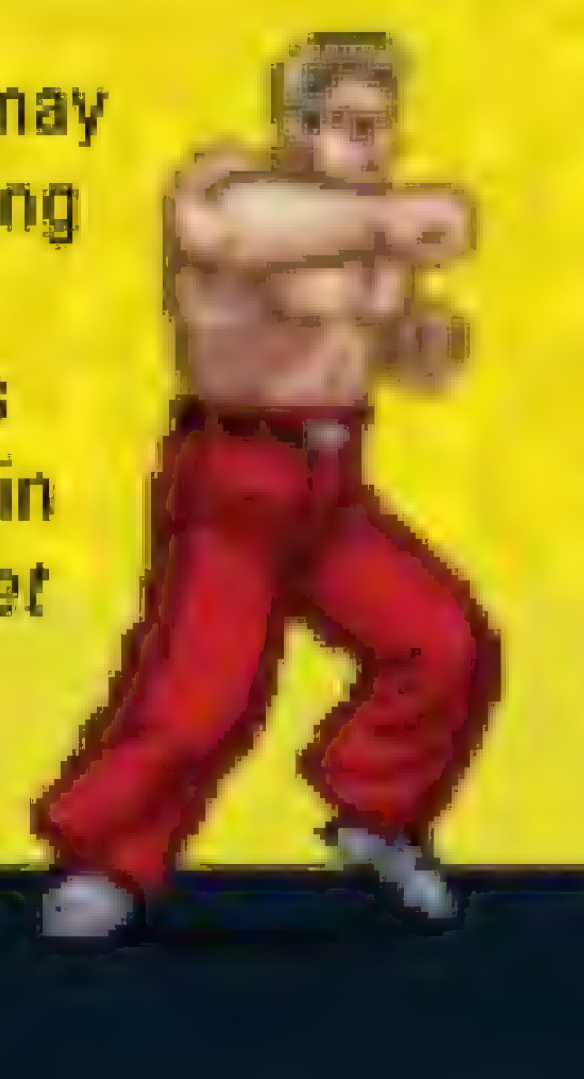
Geki

The generic ninja will see you now. The expected array of shuriken and teleport attacks are all accounted for in this rather bland character, but it takes external influence to flesh him out – according to the comics, he's an assassin from a rival clan to Ibuki's.



Joe

A kickboxer and the first of two American opponents in the original, Joe is nothing special. And while he may not have come back to the *Street Fighter* tournament, he may have been loitering outside – some suggest that he's the blonde dude in the original *Street Fighter II* intro.

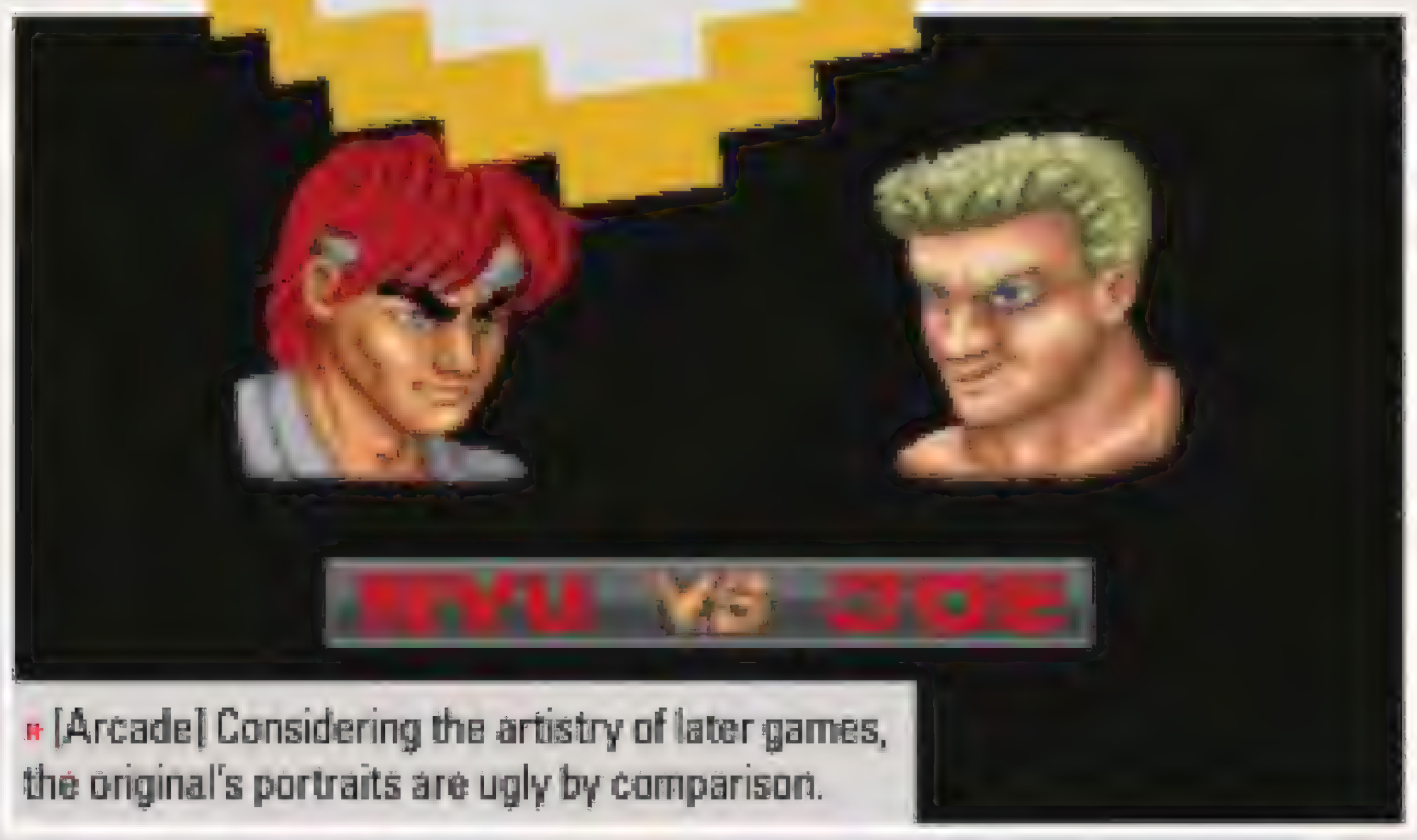


Mike

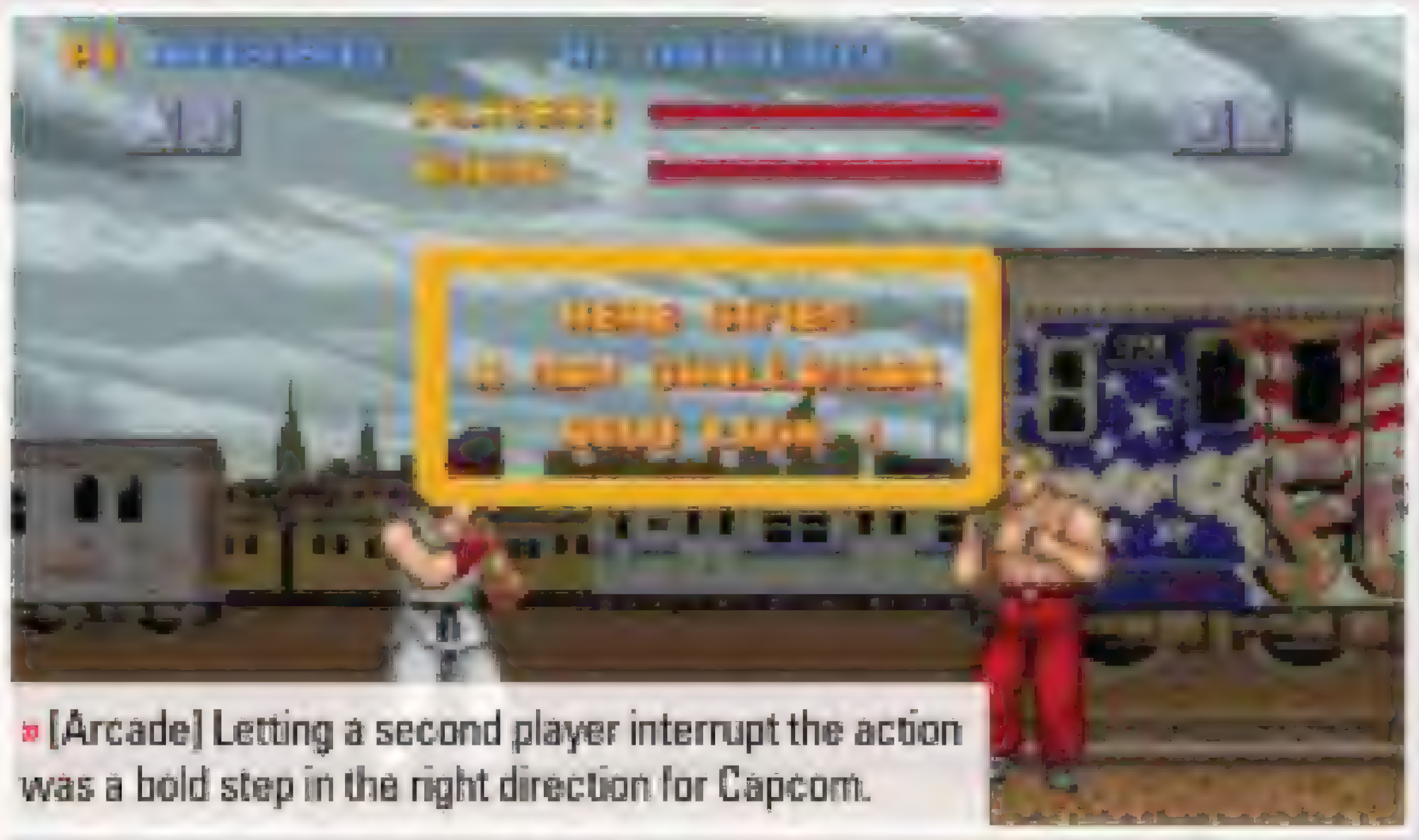
Legal issues forced Capcom to swap some of the character names in *Street Fighter II*, leading Capcom to argue that American boxer Mike and *SFII*'s Balrog (originally Mike Bison) are two separate characters. So that's canon now. Deal with it.

WHAT IT INTRODUCED

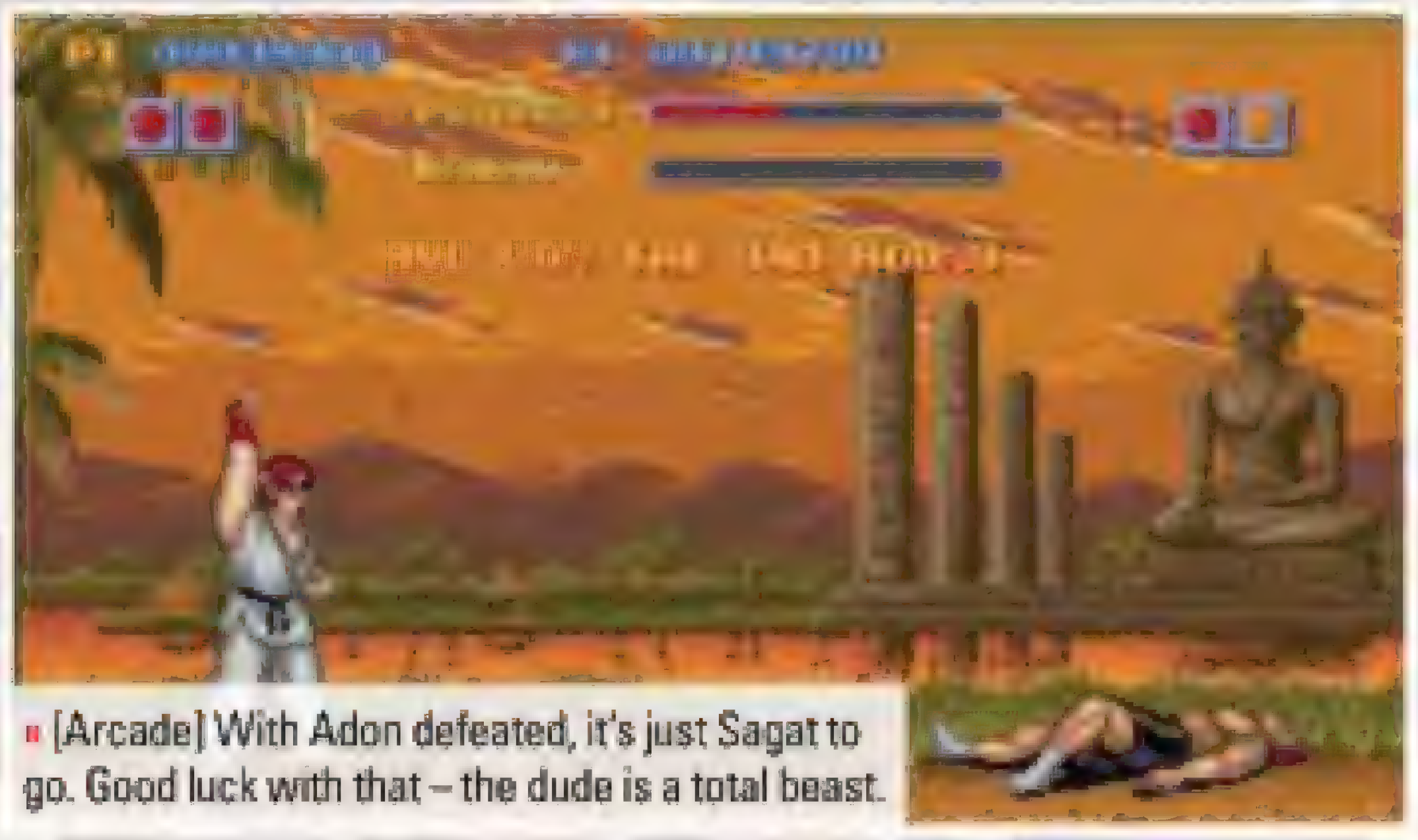
- Pressure-sensitive buttons to unleash various strengths of attack
- The now-standard six-button layout for fighting games
- Some of gaming's most iconic and popular characters



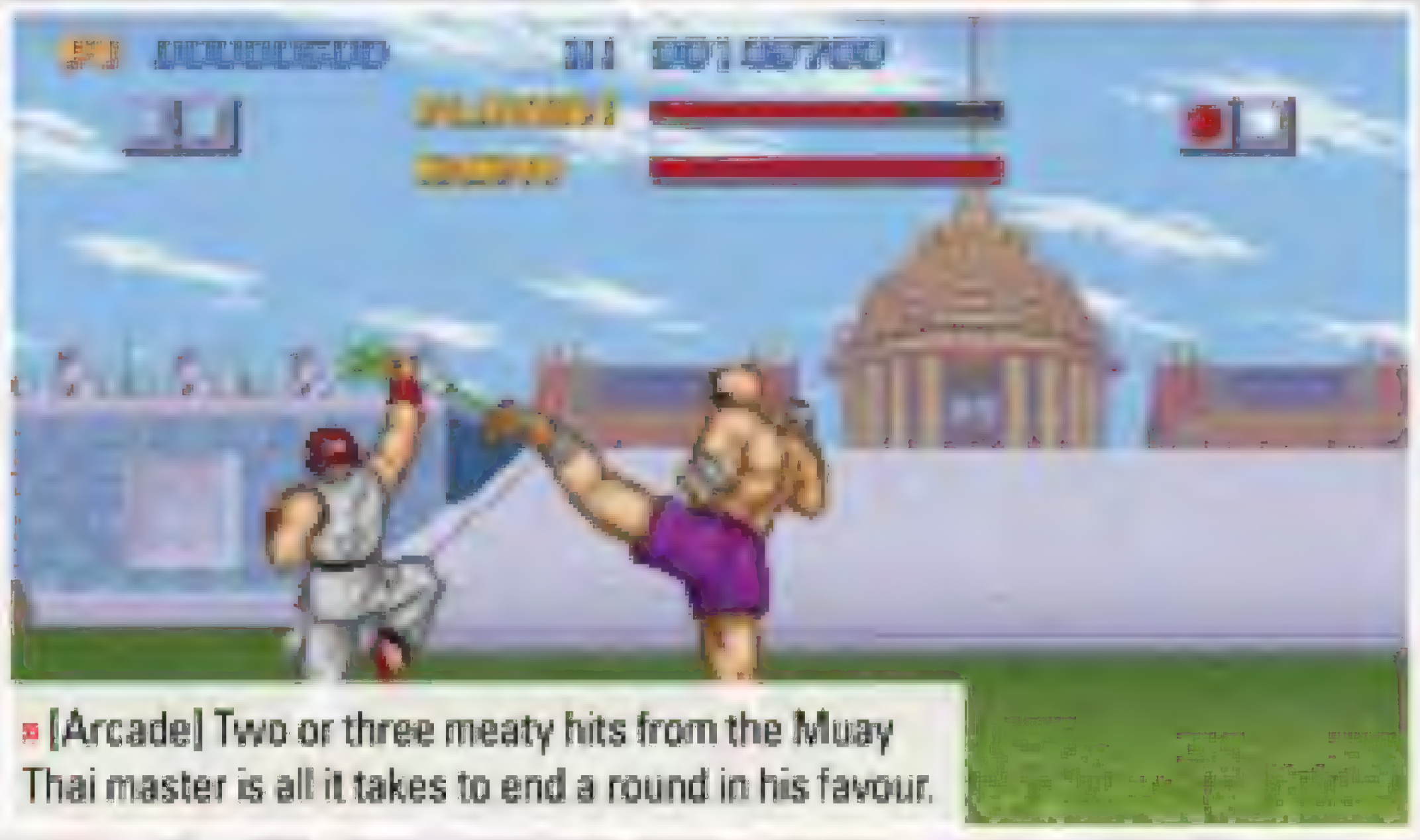
» [Arcade] Considering the artistry of later games, the original's portraits are ugly by comparison.



» [Arcade] Letting a second player interrupt the action was a bold step in the right direction for Capcom.



» [Arcade] With Adon defeated, it's just Sagat to go. Good luck with that – the dude is a total beast.



» [Arcade] Two or three meaty hits from the Muay Thai master is all it takes to end a round in his favour.

WHAT HAPPENED NEXT

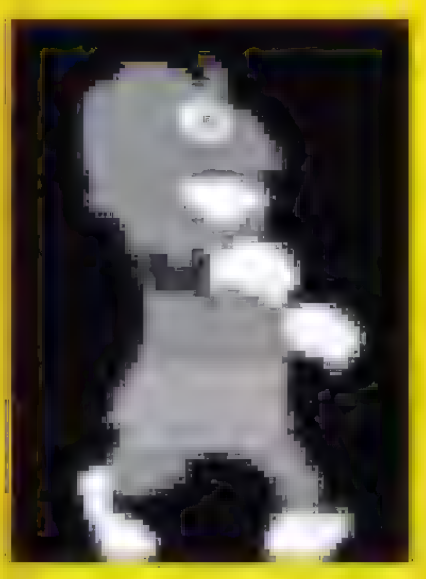
Not very much, to be perfectly honest. *Street Fighter* was just one of many games looking to further develop the concept of the one-on-one fighter, though Capcom's take on the idea wasn't really that much more inventive or professional than any of its peers. Indeed, it was a fairly quiet few years for fight fans, following the release of *Street Fighter*, with very little on offer. Home computer gamers would enjoy the likes of Palace's far more satisfying *Barbarian* and EA's somewhat terrible *Budokan* for competitive fighting, but little did we know that Capcom was hard at work on a game that would change gaming history forever.

THE COMPETITION

It was an interesting time for the fighter, the genre still very much in its infancy. The few games *Street Fighter* had in the way of competition all found themselves in the same boat, albeit pushing in different directions, to try and turn an interesting concept into a clearly defined genre. *IK+* enjoyed some success, the three-way fights (and ability to drop your trousers) setting it apart from similar games, while various publishers would try other angles – *Barbarian* toyed with extreme violence, *Ninja Hamster* with cartoon-style silliness and *Galactic Warriors* with mech-based combat. Nobody had a clear advantage over the fledgling genre… well, not yet, at least.

BEFORE STREET FIGHTER

Heavyweight Champ

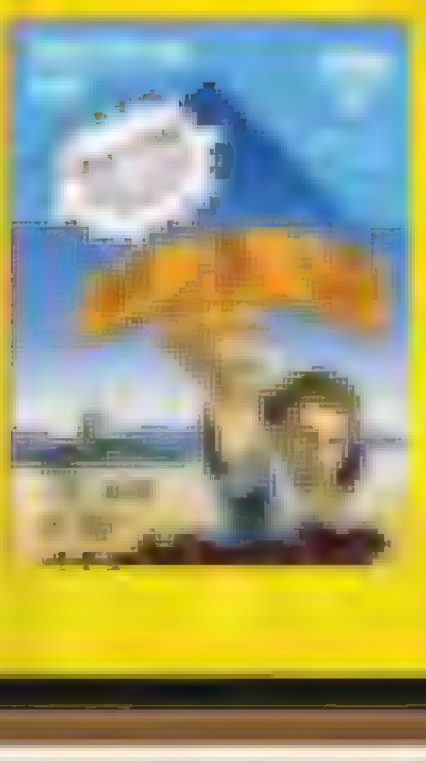


While not perhaps a spiritual forerunner to modern one-on-one fighters, Sega's arcade machine is acknowledged as being the first competitive fighting videogame. Side-on boxing isn't the best representation of the sport, mind.

Yie Ar Kung Fu

Konami's fighter paved the way for *Street Fighter* and the developer must have been kicking itself – *Yie Ar Kung Fu* is probably the better game, in truth, but Capcom beat Konami to the punch with a stellar sequel.

Way Of The Exploding Fist

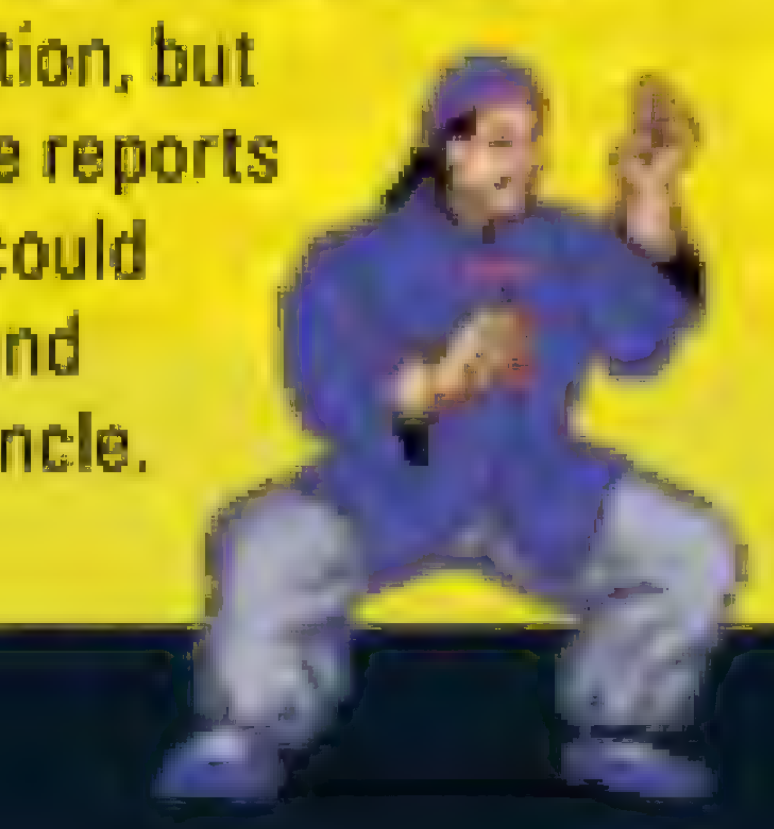


A far more accurate portrayal of martial arts than one that includes blazing fireballs and gravity-defying spins, Beam's game worked on a points system rather than employing energy bars, just like real-life competitions.

WHAT STRENGTH!!
BUT DON'T FORGET THERE ARE MANY GUYS
LIKE YOU ALL OVER THE WORLD

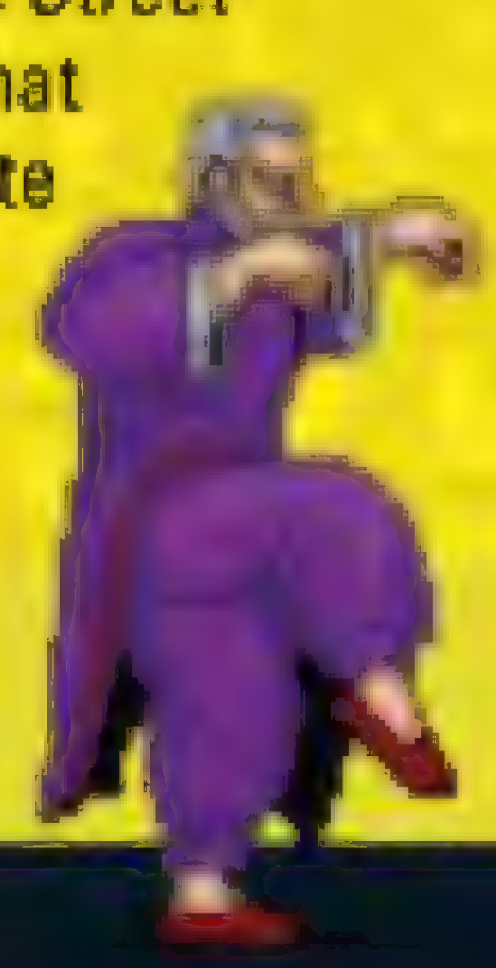
Lee

Street Fighter's first wall (who you fight on the Great Wall Of China), Lee is about twice as fast as every character previously faced and relentless in his rushdown. Again, he's not come back to the competition, but there are reports that he could be Yun and Yang's uncle.



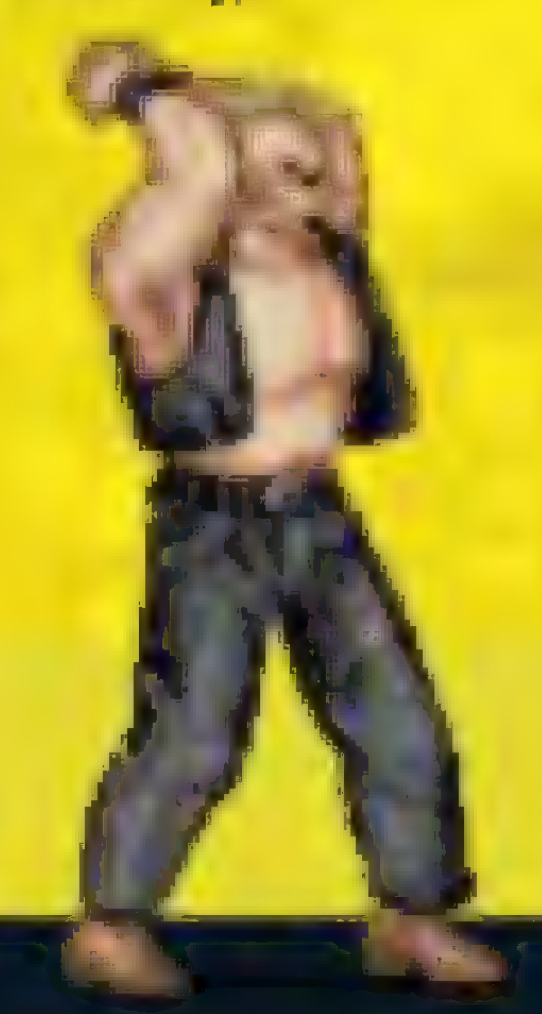
Gen

The geriatric Chinese assassin seems simple enough here, but later games reveal the intricacies of his fighting style – he's the only character in the *Street Fighter* roster that has two separate stances that completely change his arsenal of attacks.



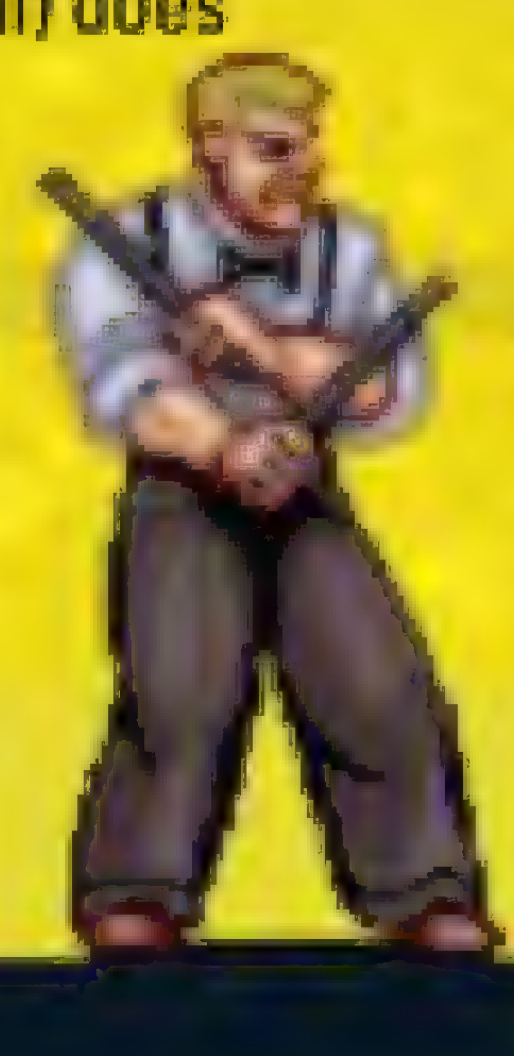
Birdie

England's burly punk hits hard, and that's enough – it only takes two or three successful hits for him to lay Ryu out. His speed isn't up to much, thankfully, so he's not all that much of a challenge, especially when kept at bay with a barrage of fireballs.



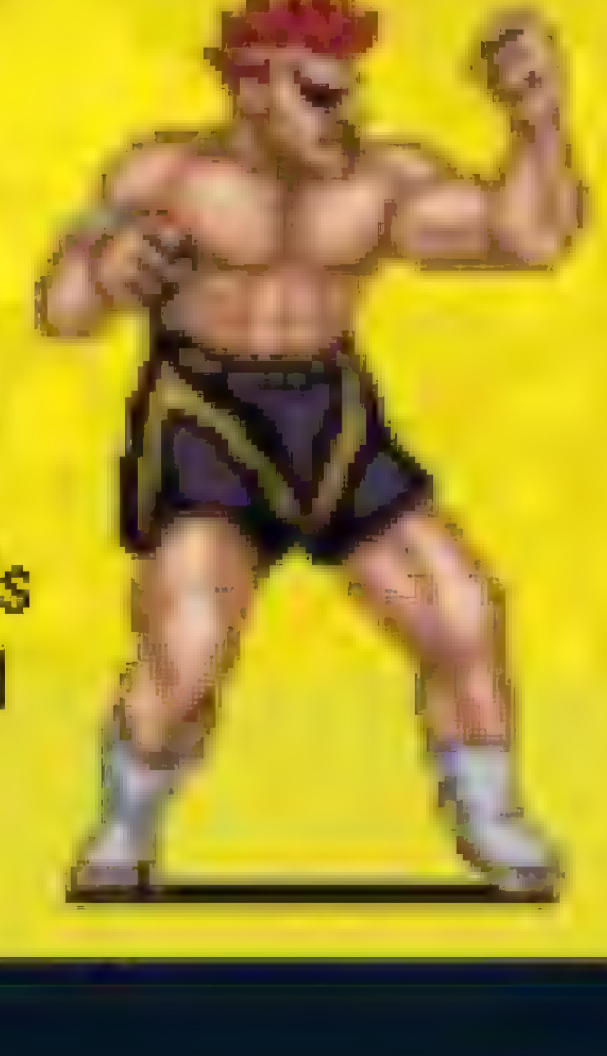
Eagle

Bringing tonfa to a fist fight isn't really on, but the second English fighter (who is also named after a golfing term – read into that what you will) does just that. The extra range serves him well, though the upper-class bouncer has nothing on Dudley's poise.



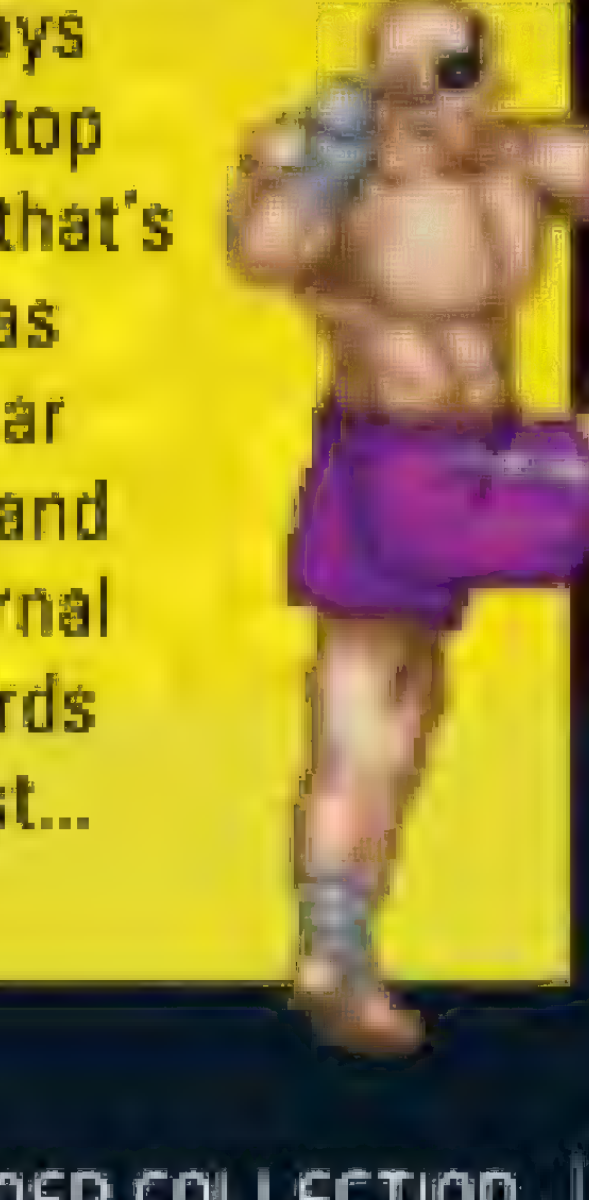
Adon

This Muay Thai expert turns the screen into a blur of legs that rips through Ryu's health bar, if you're not careful. His attacks favour speed over brute force, as is demonstrated by his Jaguar style to Sagat's more powerful Tiger style.



Sagat

You've faced the expert, now here's the master. Brutal damage and moves for all occasions make him a tough adversary, though Ryu will always come out on top eventually – that's why Sagat has that nasty scar on his chest and bears an eternal grudge towards Japan's finest…



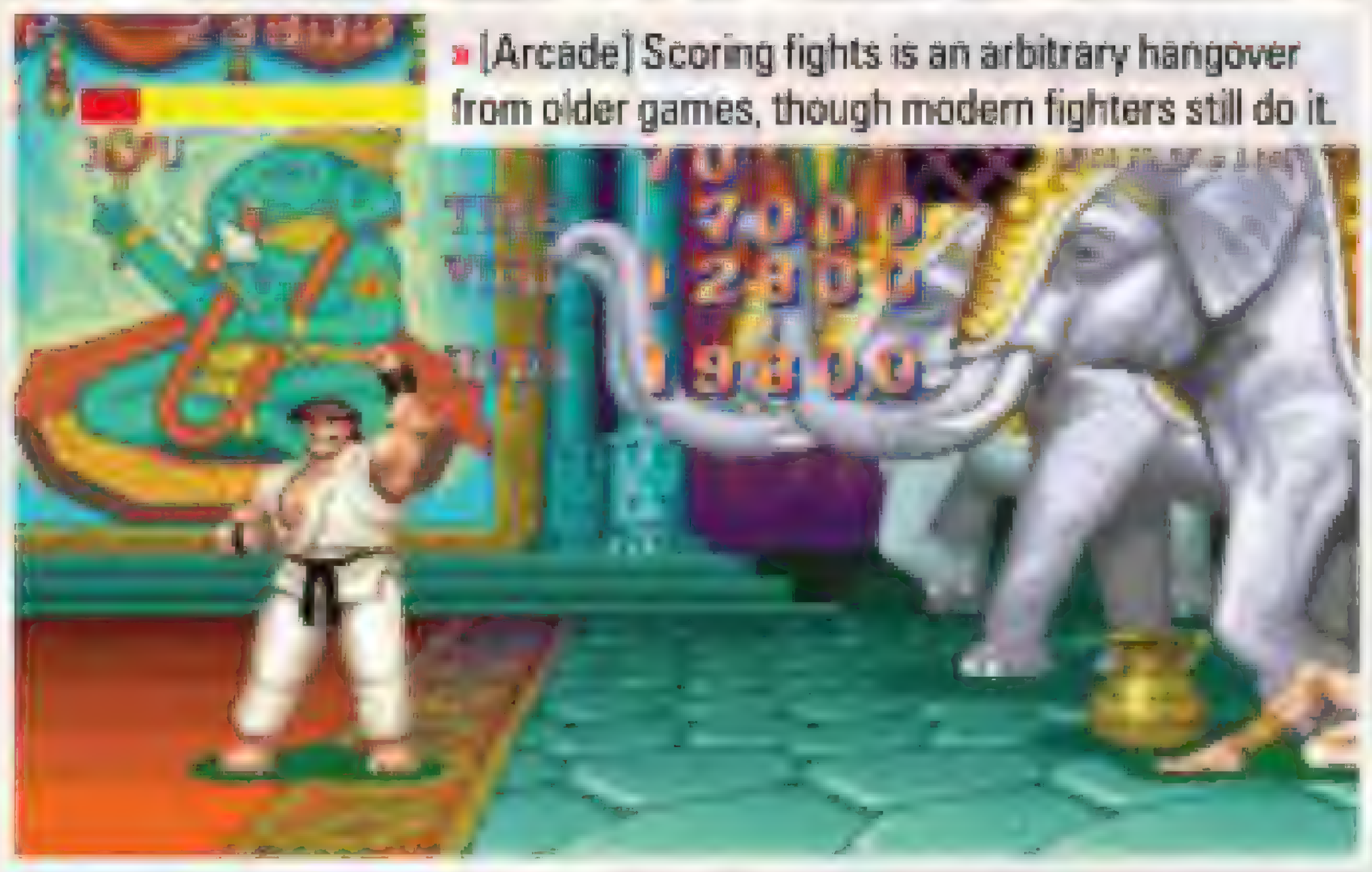
STREET FIGHTER II

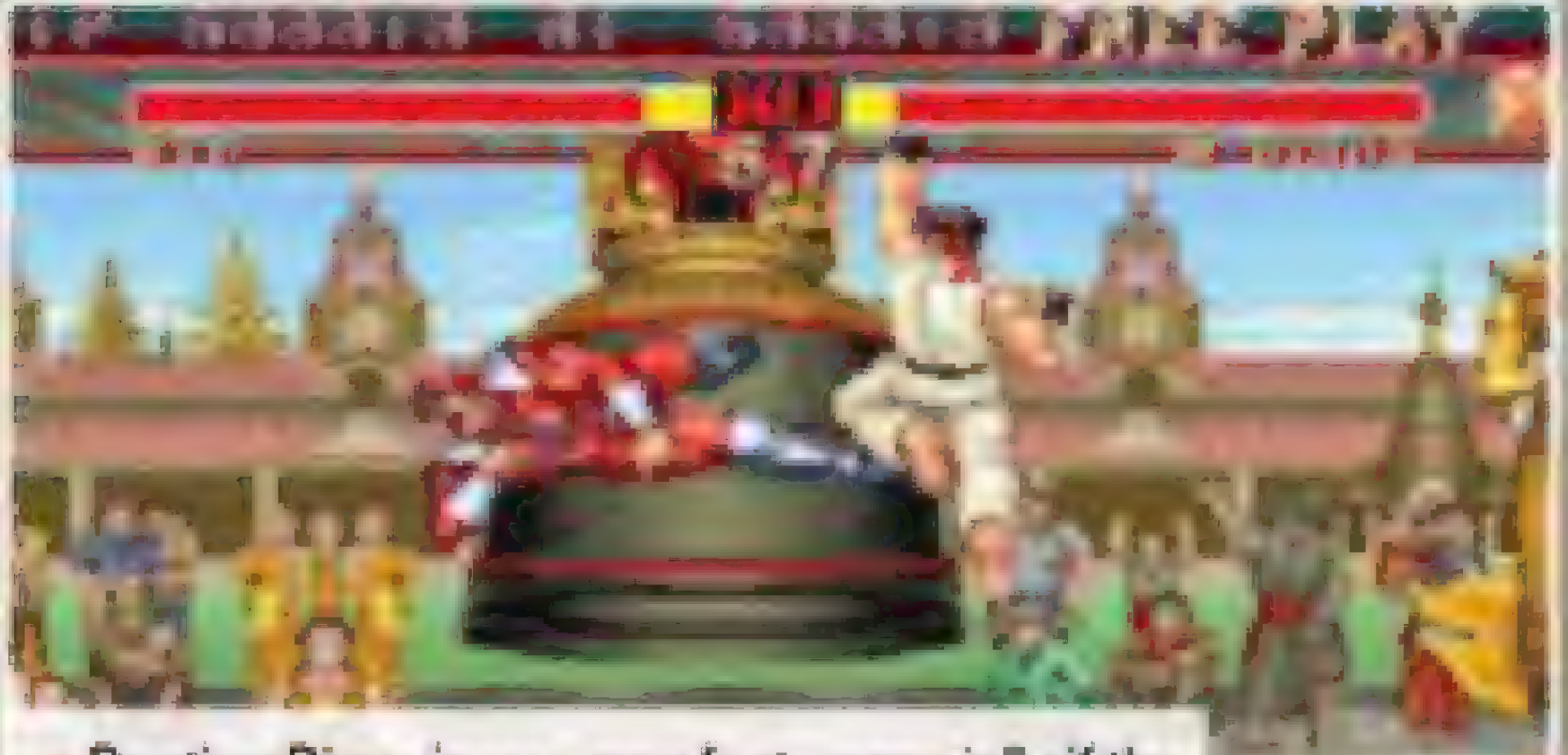
THE GAME THAT CHANGED EVERYTHING

Quite how Capcom went from shipping such a run-of-the-mill fighter to creating one of the most important games of all time in the space of one sequel is beyond us. But everything about *Street Fighter II* is just… *right.* The cast of characters, spanning a handful of stereotypes and clichés, are easy to identify with. The controls, now tuned to actually keep up with quick player input and properly register special move commands, are fluid and responsive. And the music… Main composer Yoko Shimomura may not have been particularly fond of fighters but she absolutely nailed it with the amazing selection of character-specific themes. You only have to look at all the cover versions, remixes and repurposed theme tunes that litter the Internet to see just how much impact these pieces of music have had.

> **“ SFII’s influence on the genre and on gaming cannot be understated ”**

Even when it got things wrong, *Street Fighter II* still ended up being right. The ability to cancel normal moves into specials was, believe it or not, a bug rather than a design choice – a bug that has shaped an entire genre and one that without which the fighting game as we know it would be really quite different. The concept was later embraced by Capcom, who developed it into a fully-fledged feature with hit counters and everything, though it’s hard to believe that just a staple of the genre came about by accident.

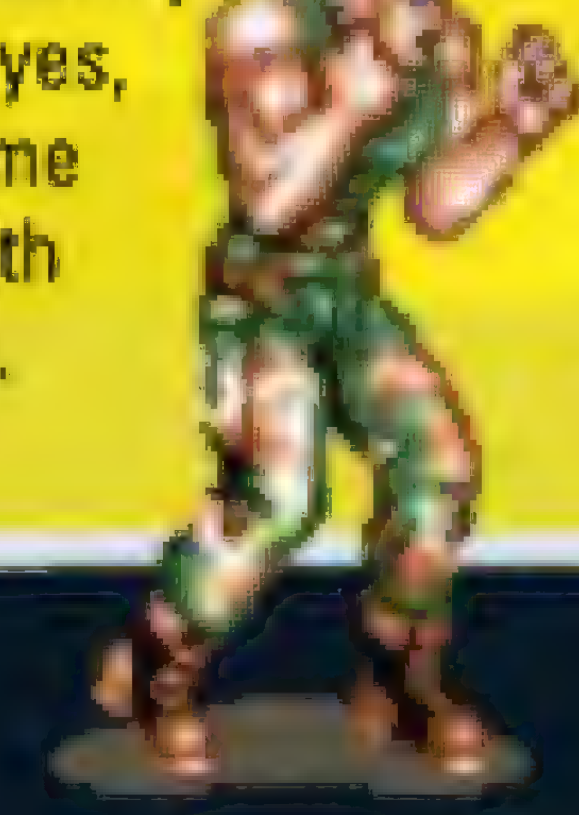

» [Arcade] Scoring fights is an arbitrary hangover from older games, though modern fighters still do it.


» Beating Bison is no mean feat, especially if the arcade owner has bumped up the difficulty.

THE NEW CHALLENGERS

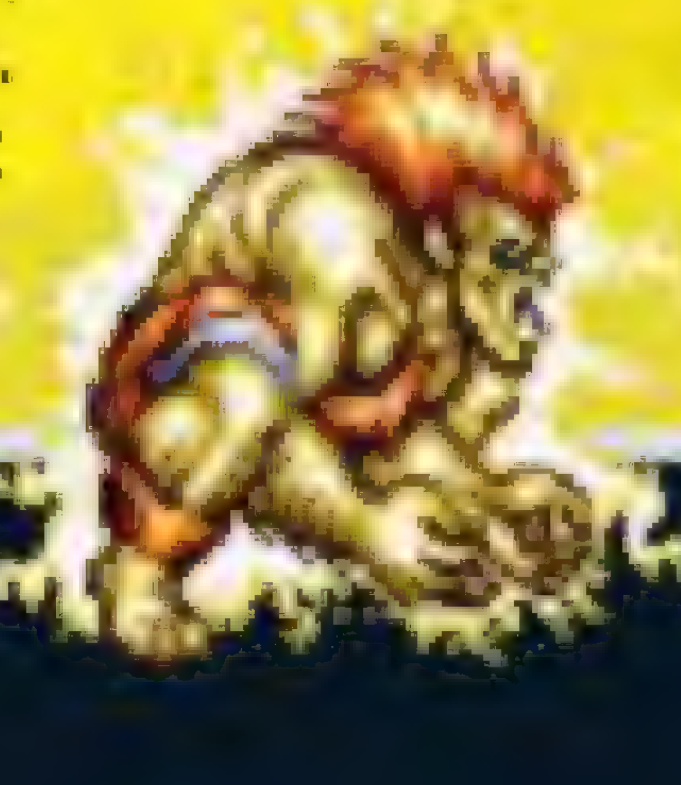
Guile

A US Air Force pilot looking to defeat Bison and avenge his deceased friend and comrade, Charlie. While he has only two special moves, they work so well in tandem that he doesn’t need any more. And yes, Guile’s theme *does* go with everything.



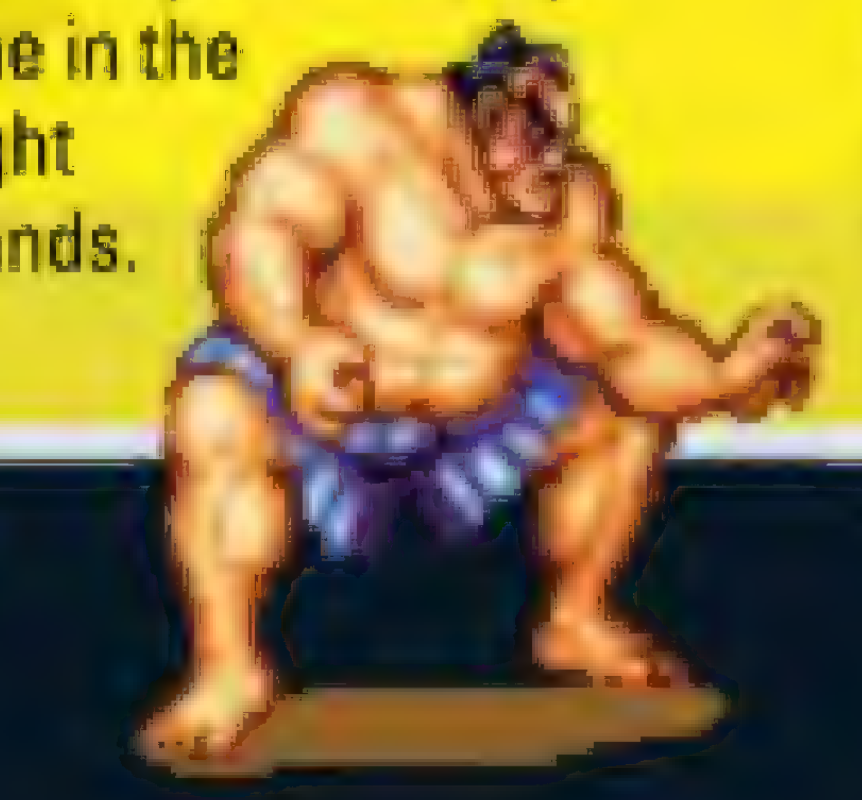
Blanka

Gaming’s most notable wildman, Jimmy Blanka was raised in the jungle after a plane crash (which gave him control over electricity…). The manual describes his fighting style as Capoeira, which is obviously bollocks. He’s just crazy.



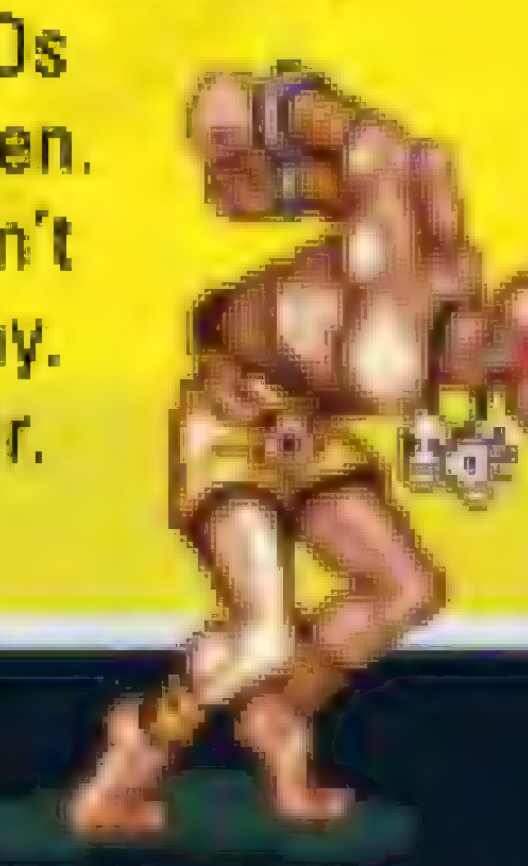
E. Honda

Throwing yourself headfirst at opponents and slapping them infinite times aren’t exactly traditional Sumo techniques, we feel, though Honda has made them his own. A powerful character and a downright terrifying one in the right hands.



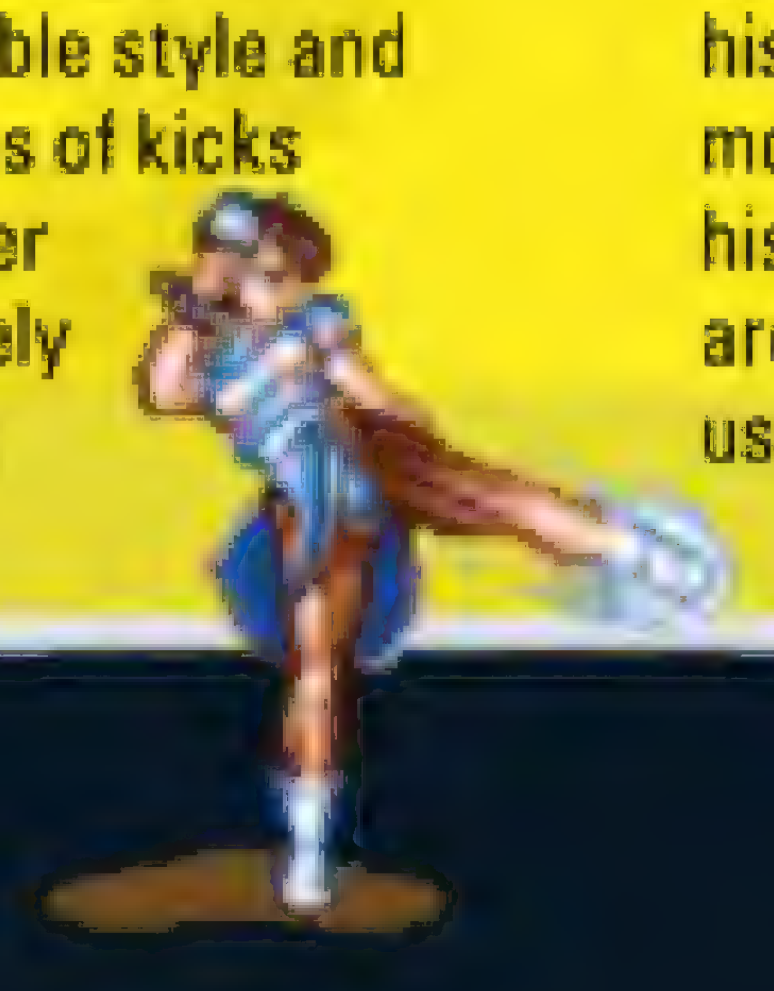
Dhalsim

Stretch Armstrong’s Indian cousin has unparalleled range, due to his mastery of Yoga. He can breathe fire and later teleport too, which aren’t things that have been covered in any Yoga DVDs we’ve seen. Which isn’t many. Any. Whatever.



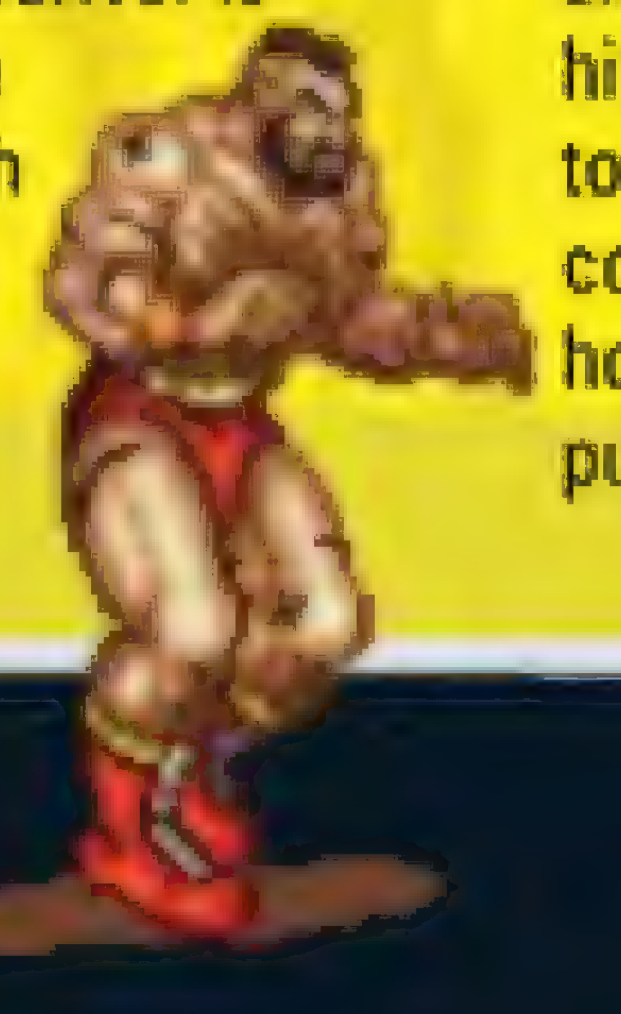
Chun-Li

An undercover agent out to avenge her father’s death at the hands of M. Bison, Chun-Li is notable as one of the first female competitors to feature in a fighting game. Her nimble style and barrages of kicks made her extremely popular.



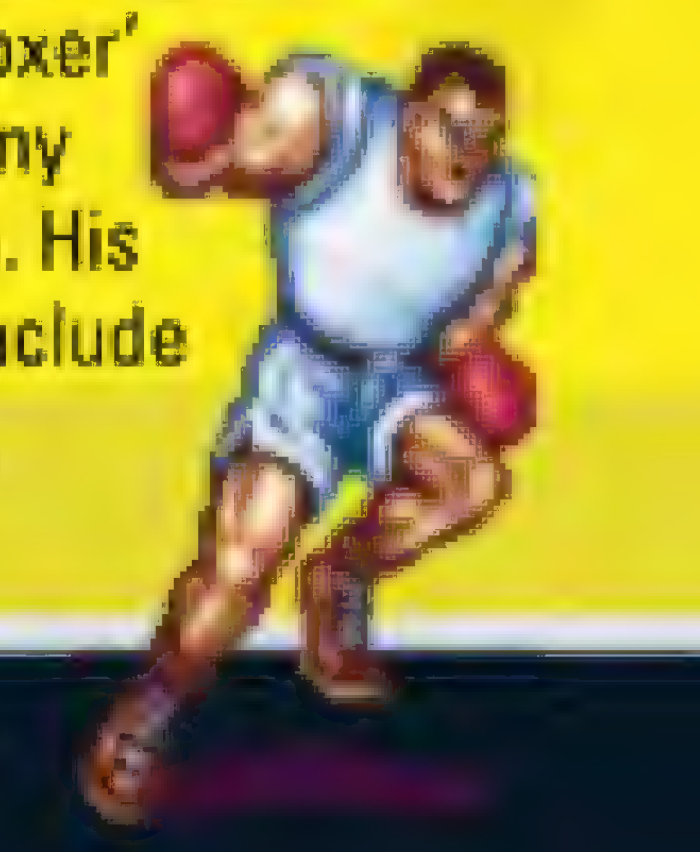
Zangief

The Red Cyclone is Russia’s finest wrestler and let’s be honest here – who wouldn’t be intimidated by a guy that practiced his moves on bears? His 360-degree input command throw Spinning Piledriver is his signature move, though his lariats are equally useful.



Balrog

No, it’s not Mike from the original game. Remember? Capcom said so, so it must be true. He’s still called M. Bison in the Japanese games, so people have taken to simply referring to him as ‘Boxer’ to avoid any confusion. His hobbies include punching.



Regardless, its influence both on the genre and on gaming in general cannot be understated. This was the game that developed the idea of direct competition rather than asynchronous, back-and-forth score attack. This was the game that cemented the idea of having separate characters with unique move sets as a must-have feature. And this is the game that, for many, represented the first steps into the world of gaming, be it a daunting few plays in a dingy arcade or the thrill of having what seemed like a perfect arcade game in your own home. This was the game that changed *everything*.

WHAT HAPPENED NEXT

The insane popularity of the arcade original spawned myriad home conversions and coin-op updates, some less legitimate than others. The SNES port was, for a long time, the most faithful home conversion and remarkably, it's still to this day Capcom's best-selling game. The first official arcade variant came in the form of *Champion Edition*, letting players use the four boss characters and addressing several issues, while *Hyper Fighting* was Capcom's way of going toe-to-toe with all the board hacks doing the rounds. *Super* later added new four characters, with *SSFII Turbo* finally unleashing Super Combos on the world.

THE COMPETITION

The cutthroat arcade scene wasted little time in jumping on *Street Fighter II*'s spectacular success and for several years, the market was awash with fighters looking to pull the rug out from under Capcom's accidental classic. SNK came to the fore during this time, with *Fatal Fury, Art Of Fighting, Samurai Shodown* and *King Of Fighters* all emerging in the space of a few years with slightly different takes on the one-on-one brawler. Midway's *Mortal Kombat* was another key competitor, digitised graphics and controversial levels of gore helping it to mainstream success. Even home platform exclusives started trying to best official ports of the Capcom game; the likes of Team 17's *Body Blows, Eternal Champions* and *Clayfighter* were among those that wanted a slice of this booming genre.

OTHER STREET FIGHTERS

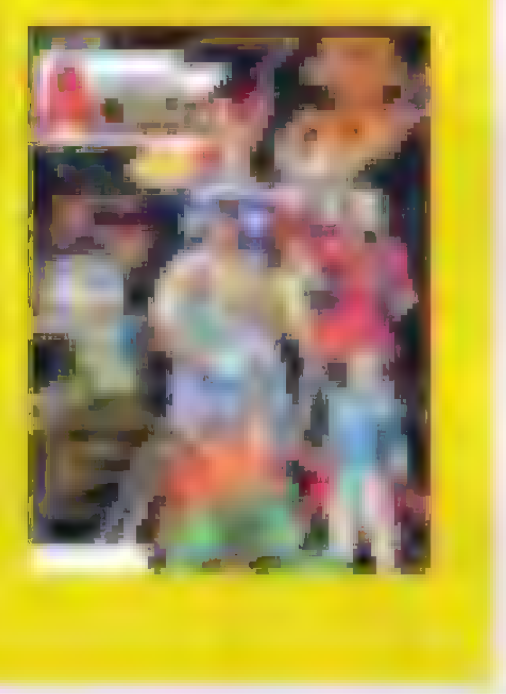
Street Fighter Alpha: Warrior's Dreams

Developed as a prequel series to *Street Fighter II*, the *Alpha* games fleshed out the characters and introduced new ones to develop the franchise's universe. Technical elements like the super meter arrived, as did new features like the Alpha Counter.

Street Fighter Alpha 2

A continuation of the original *Alpha*'s ideas, *Alpha 2* introduced Custom Combos – a system that let players burn super gauge in order to unleash unique strings of moves and specials that might not otherwise combo. Oh, and a handful of new characters too.

Street Fighter Alpha 3



The pinnacle of the sub-series and still one of the greatest fighters ever made. Selectable fighting styles and a wealth of characters offered even greater freedom and depth – hardly surprising, seeing as how this came out after *Street Fighter III*.

WHAT IT INTRODUCED

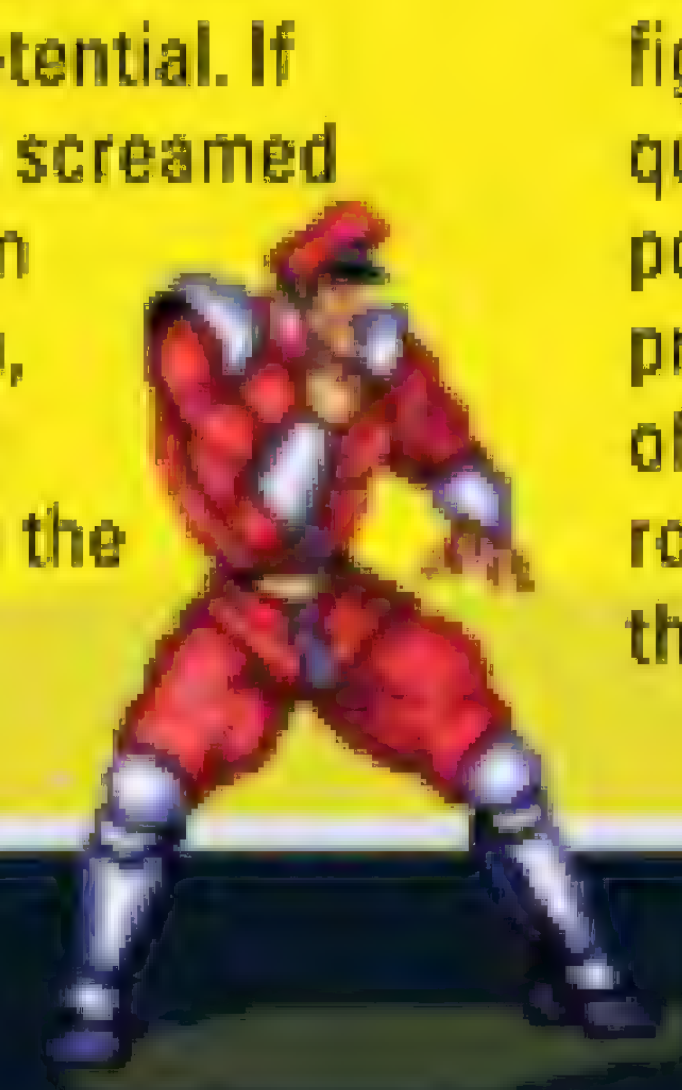
- Selectable characters for unprecedented depth and replayability
- The fighting genre's first example of a combo system, albeit by mistake
- The very notion of competitive gaming as an alternative to taking turns and comparing scores

Vega

Another name swap victim, the clawed cage fighter's Japanese name of Balrog actually makes far more sense. His arrogance and grace in battle make him a love/hate character, though most that have faced a skilled Vega player will probably lean towards hate.

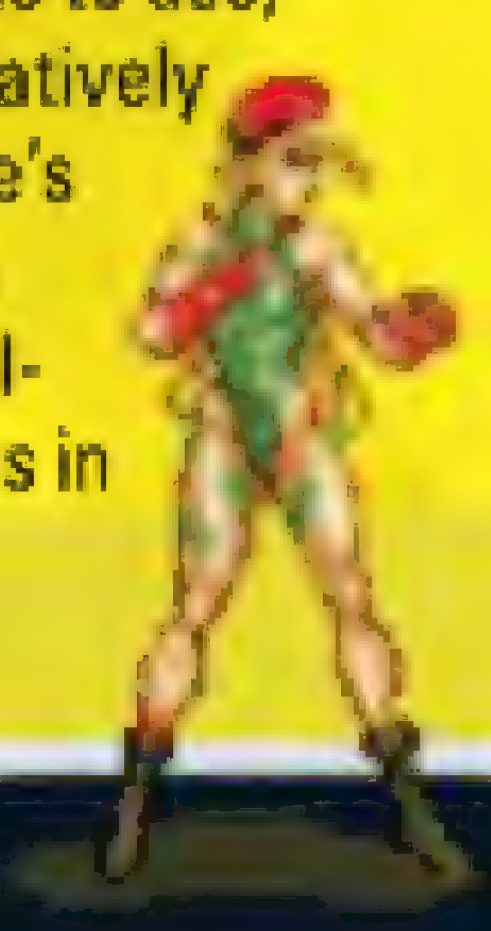
M. Bison

The Shadaloo boss and final opponent in *SFII* (Vega in the Japanese version, to tie up the name-swap silliness), Bison's Psycho Power gives him incredible combat potential. If you've not screamed his name in frustration, you didn't grow up in the Nineties.



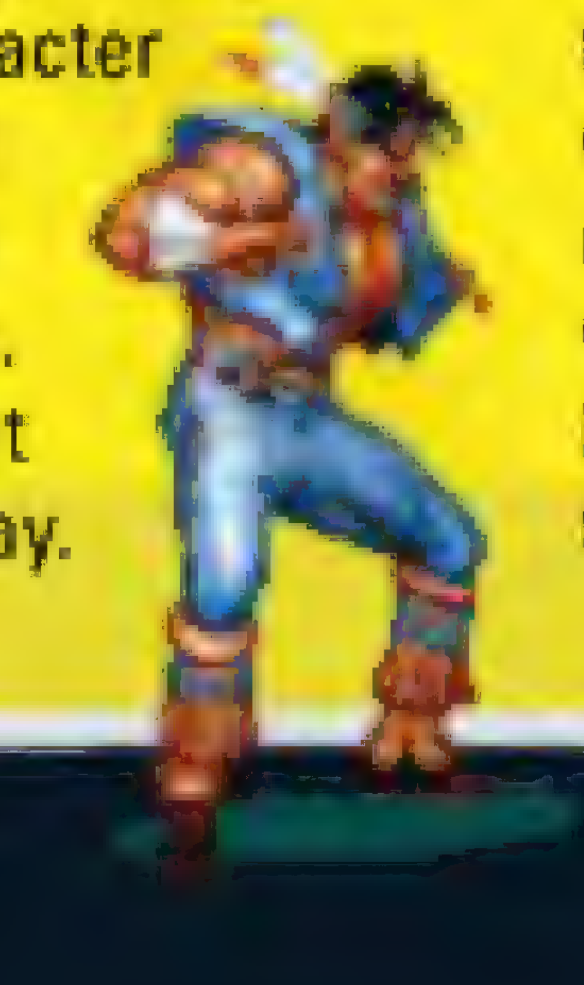
Cammy

Both British secret service agent and former Shadaloo puppet, Cammy's past is somewhat messy but that's not to say it hasn't made her an exceptional fighter. Simple to use, quick and relatively powerful, she's probably one of the best all-round fighters in the series.



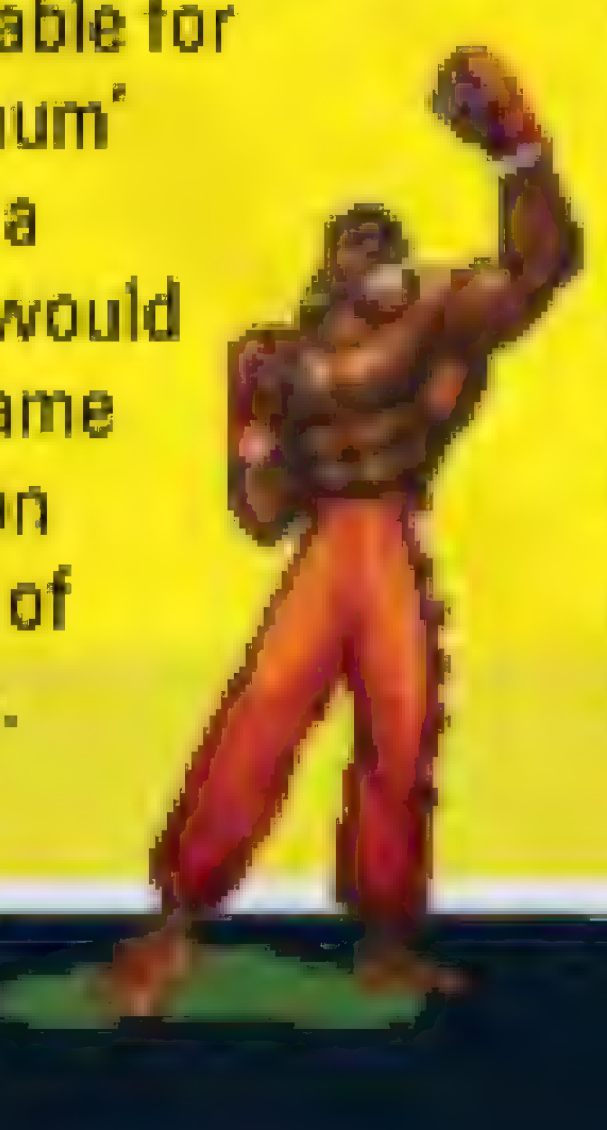
T. Hawk

One of *SF*'s worst cases of racial stereotyping, Native American combatant T. Hawk (or Thunder Hawk to his friends) actually fills a gap in the roster pretty well – a large, heavy-hitting character that doesn't have to rely on grapples. Not that that makes it okay.



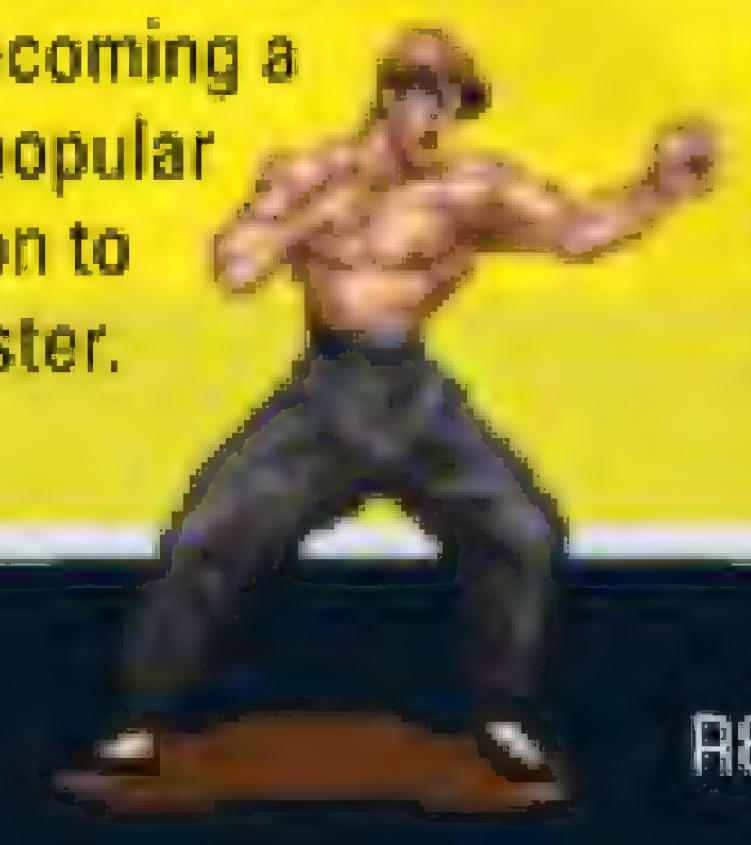
Dee Jay

The only character in the series designed by Capcom US and among the most hated. Coincidence? Another iffy racial stereotype, mainly notable for his 'Maximum' trousers – a word that would read the same vertically on both sides of the screen.



Fei Long

Yeah, okay, so the new challengers were all pretty much dodgy stereotypes. Still, Fei Long's kung fu skills offered a far closer representation of a real martial art than anything presented by the series so far, hence him becoming a fairly popular addition to the roster.



Akuma

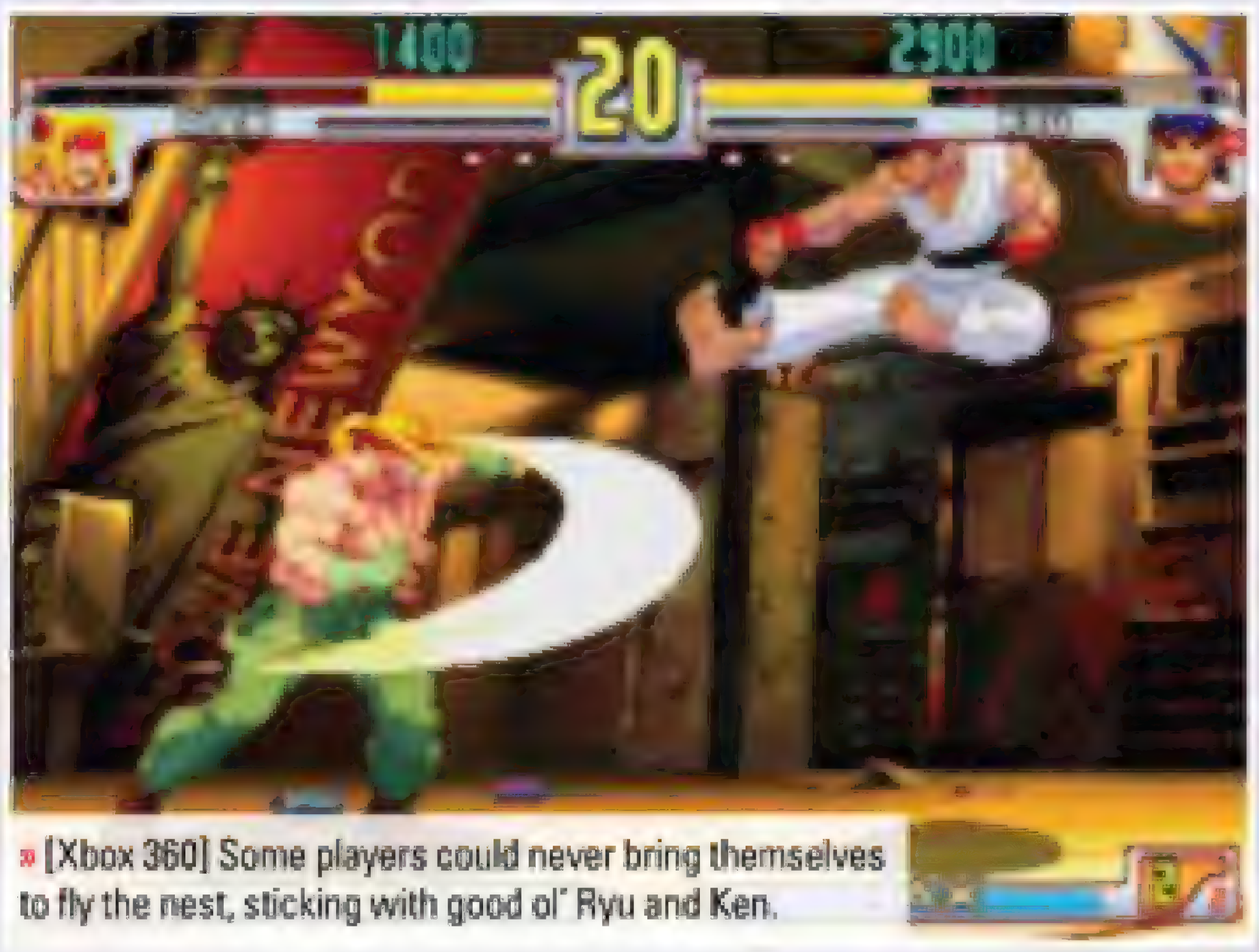
The embodiment of evil and the antithesis of Ryu. He's the younger brother of Ryu and Ken's sensei and has gone totally off the rails in his search for ultimate power. A recurring secret boss in the franchise – be on the lookout for his Raging Demon. You might want to jump.

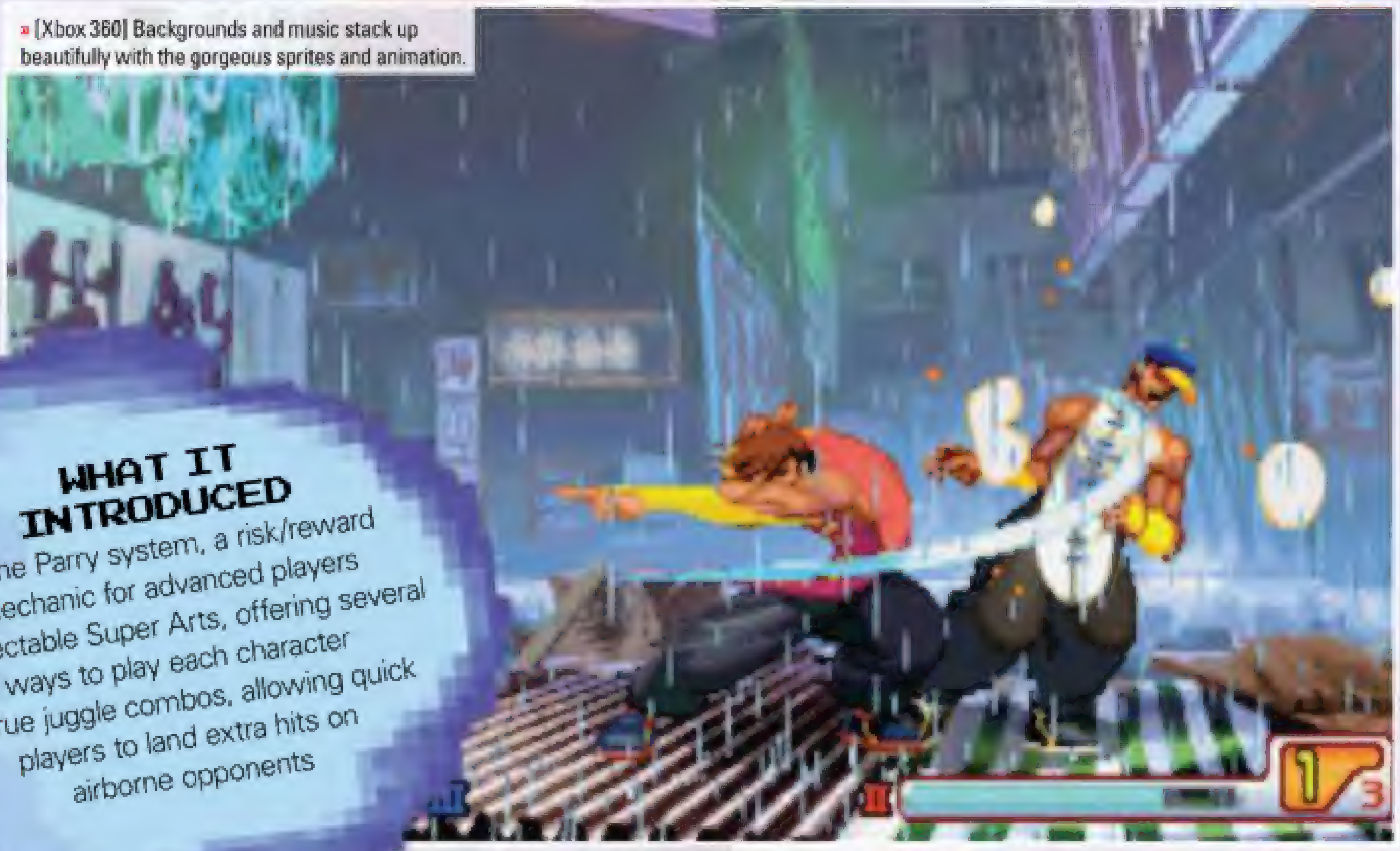
DESPERATE TIMES...

With the world and its dog having developed a bunch of 2D fighters and saturated the market to the point where not even the hardcore could really bring themselves to care, the late Nineties wasn't a good time to be a beat-'em-up fan. Capcom had been plugging away with the *Street Fighter* brand through the popular *Alpha* spin-off franchise but when it came to develop a full sequel, apathy had set in within the fighting community to a dangerous degree. And with 3D fighters starting to really come into their own as well, it seemed like Capcom was fighting a losing battle.

But determined to buck the trend and take back its crown from the genre's new 3D pretenders, Capcom came good with a gorgeous and inventive return to form. A brand new cast (with the exception of returning fighters Ryu and Ken) gave willing players an entire new roster of archetypes to learn and the Parry system – while not exactly embraced at the time of release – would go on to create a moment that will go down in gaming history forever. At the Evo 2003 tournament, the high-level feature seemed like something beyond the grasp of many, but when Daigo parried all 15 hits of Justin Wong's Chun-Li Super Art and responded with a perfect combo to win, the room erupted and the entire world stopped to take notice of fighters once more. There could literally have been no better advert for *3rd Strike*.

> “ SFIII was determined to take back its crown from the new 3D pretenders ”


» [Xbox 360] Some players could never bring themselves to fly the nest, sticking with good ol' Ryu and Ken.


» [Xbox 360] Backgrounds and music stack up beautifully with the gorgeous sprites and animation.

WHAT IT INTRODUCED

- The Parry system, a risk/reward mechanic for advanced players
- Selectable Super Arts, offering several ways to play each character
- True juggle combos, allowing quick players to land extra hits on airborne opponents

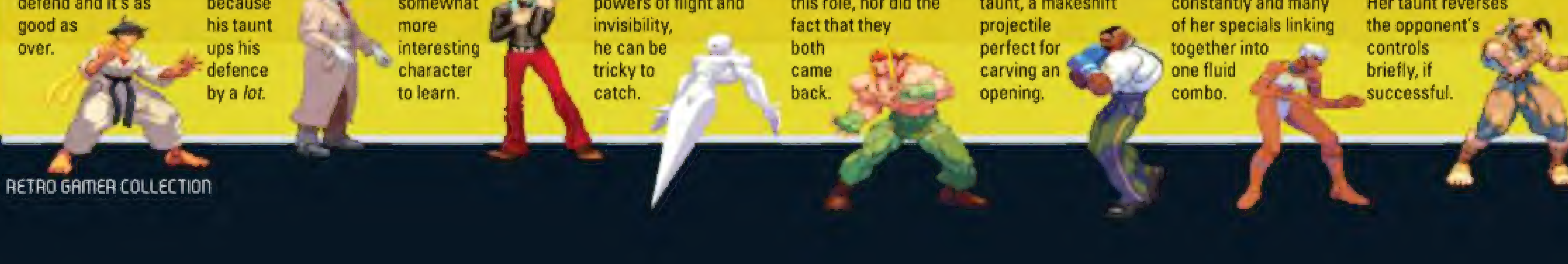
WHAT HAPPENED NEXT

With the 3D boom and the almost entirely new cast causing *III* to be far less of a success story than its predecessor, Capcom pulled its old trick with a pair of updates to the arcade version. *2nd Impact* brought several new characters, the ability to escape throws and the first example of EX special moves, while *3rd Strike* arrived a good two years later, bringing with it yet more new fighters, a refined input system for advanced abilities and balance tweaks that would make it perhaps the greatest 2D fighter ever made. Stellar Dreamcast ports of the first two games (as the *Double Impact* collection) and *3rd Strike* brought the action home, plus it would later appear alongside *Hyper Street Fighter II* on the *Anniversary Collection*, released for PlayStation 2 and Xbox to mark 15 years of the franchise.

THE COMPETITION

Capcom's rivals had really started to establish themselves by this point, although the real threat didn't come from Midway or from SNK – it came from polygons. With PlayStation taking then-revolutionary

THE NEW CHALLENGERS



Makoto

The young Japanese Karate expert isn't for everyone, though her rushdown style makes her *Street Fighter III*'s glass cannon – land your big combo and you've probably won but sit back and defend and it's as good as over.

Q

Street Fighter's mystery man, little is known about what Q actually is. Favouring brute force over speed and lengthy combos, he's a fierce opponent in the right hands, not least because his taunt ups his defence by a *lot*.

Remy

France's answer to Guile is far more delicate and elegant than his military analog, though he's not much less dangerous. His extra special moves also make him a somewhat more interesting character to learn.

Twelve

The gooey experiment that is Twelve is probably the worst character in *SFIII*, though many have learned him for just that reason – nobody expects his bizarre fighting style, and with powers of flight and invisibility, he can be tricky to catch.

Alex

Another brawler, albeit one with a few more tricks up his sleeve than usual. Originally intended as a replacement for *SFII* frontmen Ryu and Ken, his play-style didn't help him fit this role, nor did the fact that they both came back.

Dudley

A gentleman boxer is the perfect counterpoint to Balrog's bullish approach to fisticuffs – Dudley's butler is always on hand and the pugilist can even throw roses with his taunt, a makeshift projectile perfect for carving an opening.

Elena

If you thought Chun-Li was all legs, you ain't seen nothing yet. Elena's stunning animation remains one of the highlights of *SFIII*, those stupidly long legs flailing around the screen constantly and many of her specials linking together into one fluid combo.

Ibuki

The original has generic ninja Geki but *SFIII* gets the far more interesting Ibuki, another fragile character that excels in rushdown play and in confusing the opponent into making mistakes. Her taunt reverses the opponent's controls briefly, if successful.

OTHER STREET FIGHTERS

Street Fighter EX

With the 3D revolution in full swing, Capcom didn't want to be too late to the party it helped start. It did, however, turn up horrifically dressed and half-cut – *Street Fighter*, it seemed, was not cut out for life in 3D.

Street Fighter EX2

But that didn't stop a sequel from surfacing, improving matters slightly but still not to an extent where the game has any worth above 2D versions of the game. A side mode did pave the way for *SFIV*'s character-specific Trials, though.

Street Fighter EX3

A PlayStation 2 launch title, but not one of the better ones. The same dodgy 3D visuals returned, joined this time by a tag mechanic similar to the *Versus* series and *Tekken Tag Tournament*. Not one of the series' high points.

6100
83
9300
MAX

» [Xbox 360] In truth, Sean's move pool isn't dreadful – it's his lack of priority really hurts him.

5200
73
66900
MAX

» [Xbox 360] Yun is by far the better of the Lee twins, although Yang's style still won him plenty of fans.

strides in 3D home gaming and arcade boards growing more powerful at a shocking rate, 3D fighting games like *Virtua Fighter*, *Tekken* and *Soul Blade* proved far more interesting and novel to gamers than the sprite-based visuals they had been fighting with for a decade. Despite dwindling interest in traditional 2D fighters, the push for quality resulted in some of history's finest fighters – *3rd Strike* is without doubt Capcom's best while SNK's answer, *Garou: Mark Of The Wolves*, is right up there as well. What, no love for *Mortal Kombat*? No. Move along.

» [Xbox 360] Letting Q taunt isn't the best idea – even with Urien setting up Aegis Reflectors everywhere, the robotic freak is still a monster after a taunt or two...

> **“ The real threat didn't come from Midway or SNK, it came from polygons ”**

Necro

SFIII's version of Blanka, if you will, replete with an electrocution attack and a screen-spanning spin, albeit horizontally rather than vertically. He's not much of a threat, but you can't help but feel for a character who has to apologise every time he's late.

Oro

Two arms? Sod that, Oro can beat you with just one. Among the franchise's oddest fighters, this old guy's unconventional style won him few fans at launch, but the fact that he's mained by one of the UK's best players, Zak Bennett, shows there's something there...

Sean

If you wake up in a fighting game one day and your Super Art is a one-hit fireball, it shouldn't take too long to work out that you're a joke character. Sean is *SFIII*'s Dan, then – no amount of training under that filthy scrub Ken is going to do anyone any good, after all.

Yun

Genei Jin *is* Yun. His third Super Art lets him stylishly link almost any of his specials into one destructive combo with the right execution, making him a perfect choice for high level players. Doing one damage, his hat spin taunt is perfect for trolling.

Yang

The runt of the litter, Yang started life as a palette swap of Yun but later got given his own moves and abilities. Which, sadly, made him worse. He's a decent fighter, though his custom combo Super Art is nothing compared to Genei Jin.

Gill

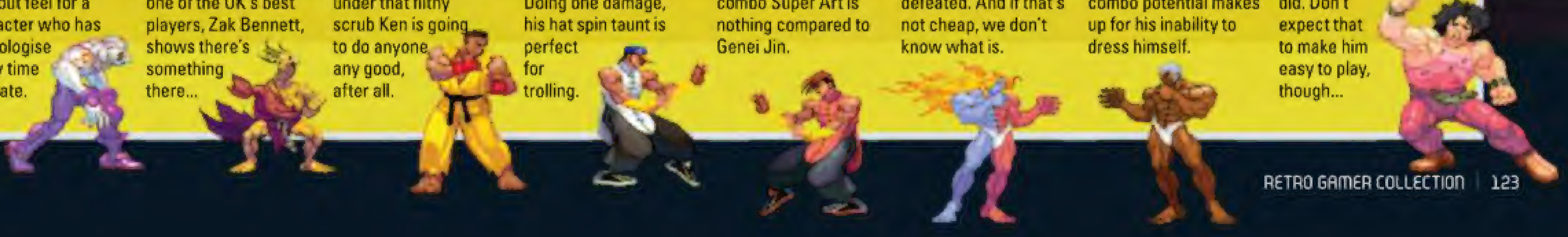
The game's every-bit-as-cheap-as-expected boss, Gill can either use his super gauge to rain fire down on the screen for insane damage (even if blocked) or conserve it to resurrect when defeated. And if that's not cheap, we don't know what is.

Urien

A rushdown charge character is a rare beast indeed, and Urien fills the role brilliantly. He could probably do with wearing more than just a pair of pants when going into a fight, though his crazy combo potential makes up for his inability to dress himself.

Hugo

He's number one, apparently. *SFIII*'s Zangief equivalent has no less than three command grabs (and two more in his Super Arts), but he has more ways to close distance than the Russian ever did. Don't expect that to make him easy to play, though...



STREET FIGHTER IV

A LEGEND IS REBORN

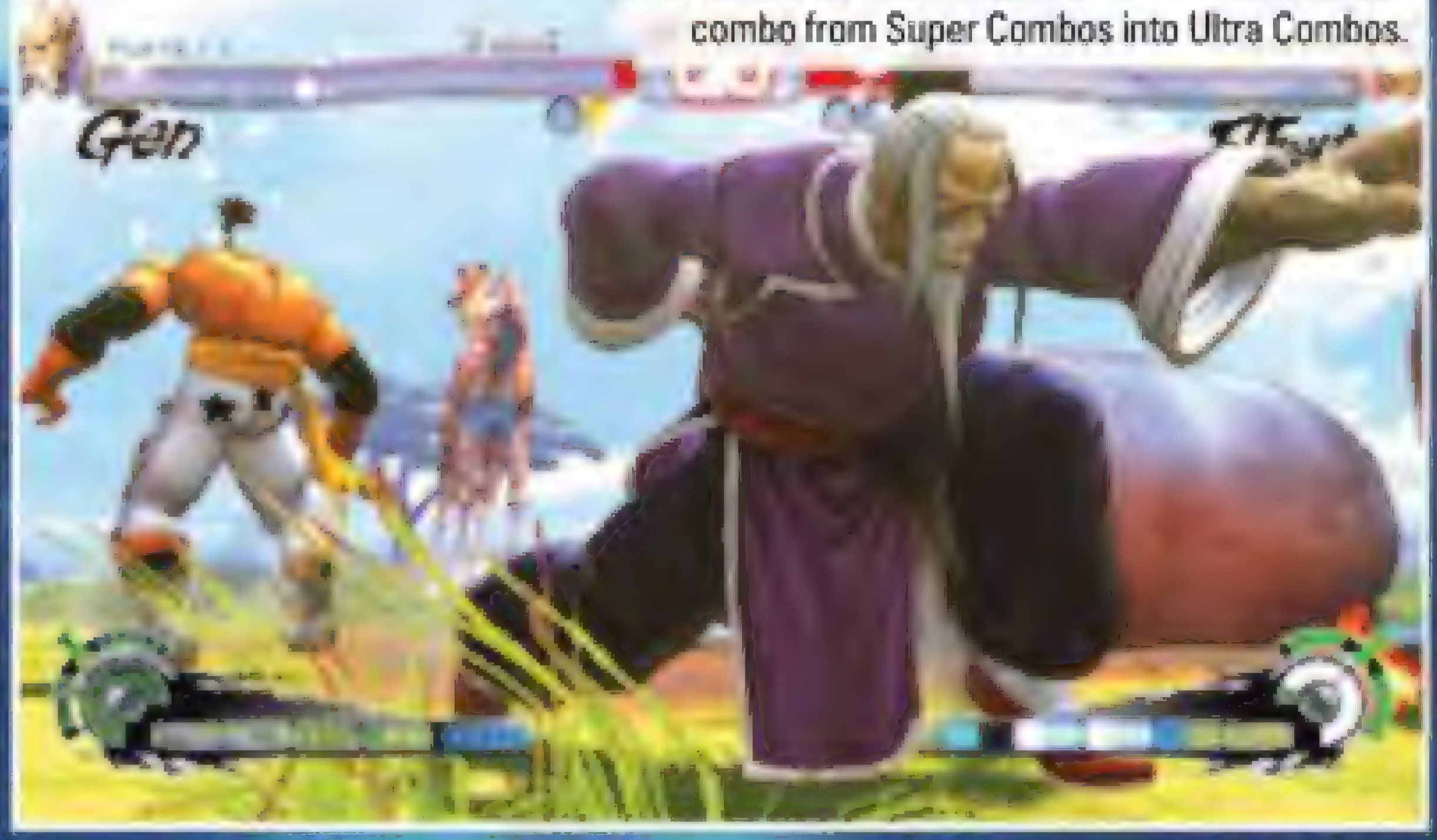
The eight years between *Street Fighter EX3* and *IV* represented the longest the series had ever gone without a new game, largely because many senior Capcom figures weren't exactly behind the project. But relatively unknown Capcom producer Yoshinori Ono pushed relentlessly for a new *Street Fighter* game despite opposition from his peers and superiors.

After the roaring success of the HD remake of *Super Street Fighter II*, though, the Capcom suits were left little choice but to sit up and pay attention to Ono, who was put in charge of bringing back *Street Fighter* properly. The thinking behind the belated comeback was simple – set between *SFII* and *SFIII*, *Street Fighter IV* would bring back the entire cast of world warriors from the series' most popular game while mirroring its accessibility.

SFIV was designed to be instantly familiar and that proved to be one of the core strengths of this late return. But as well as ensuring a low entry barrier and a balanced playing field, Capcom also did a great job of making *IV* a multi-tiered affair that could be employed by players of all skill levels. Take the Focus Attack, for example. Newcomers could use it to stun hesitant opponents for a free combo, intermediate players could use its armour properties to absorb single blows in a similar way to *SFIII*'s Parry (using a dash to cancel recovery or activation of the actual attack) while pros could use it to cancel attacks, leading to some of the game's flashiest combos. The comeback mechanic, Ultra Combos, offered similar depth – many newcomers could throw out hopeful Ultras, but most characters could combo into their ultimate attacks with the right set-up. *Street Fighter* was back on top.

WHAT HAPPENED NEXT

With the current hardware generation poised to overflow with me-too shooters, Capcom's timing in bringing back *Street Fighter* was absolutely perfect. Long-dormant fighting fans rose from their slumber to seek out arcade units, with the improved home version bringing competitive fighting back to the masses just like *SFII* had done 17 years before. The *Super* version added new characters and selectable Ultra Combos, and *Arcade Edition* bringing a further four to bring it in line with the latest coin-op version.



» [Xbox 360] Some characters, such as Gen, can combo from Super Combos into Ultra Combos.

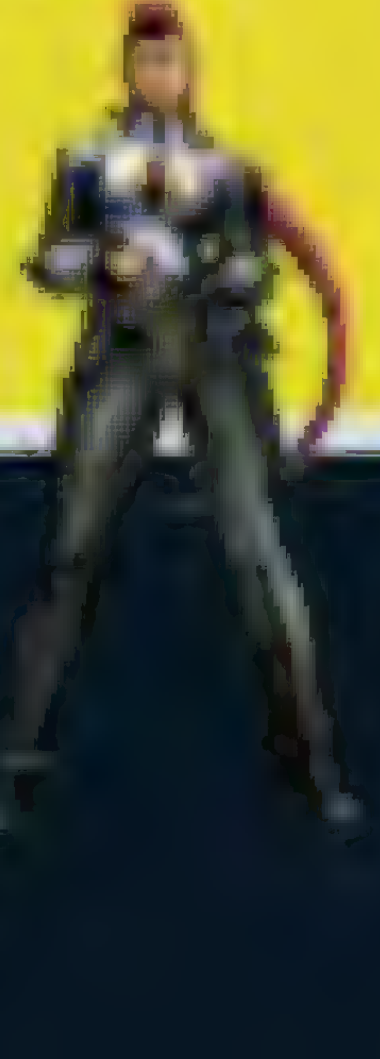
THE NEW CHALLENGERS

Abel

French amnesiac Abel remembers nothing of his past... except for massively complicated close-combat moves. It's likely that he was a discarded prototype in the program that led to the creation of *SFIV*'s boss, Seth.

C. Viper

Many claim she looks more like an SNK character than a Capcom one but Viper fits into the *SFIV* cast just fine. Her combat suit lets her burn and electrocute, with jump jets in her heels making her one of two with a Super Jump.

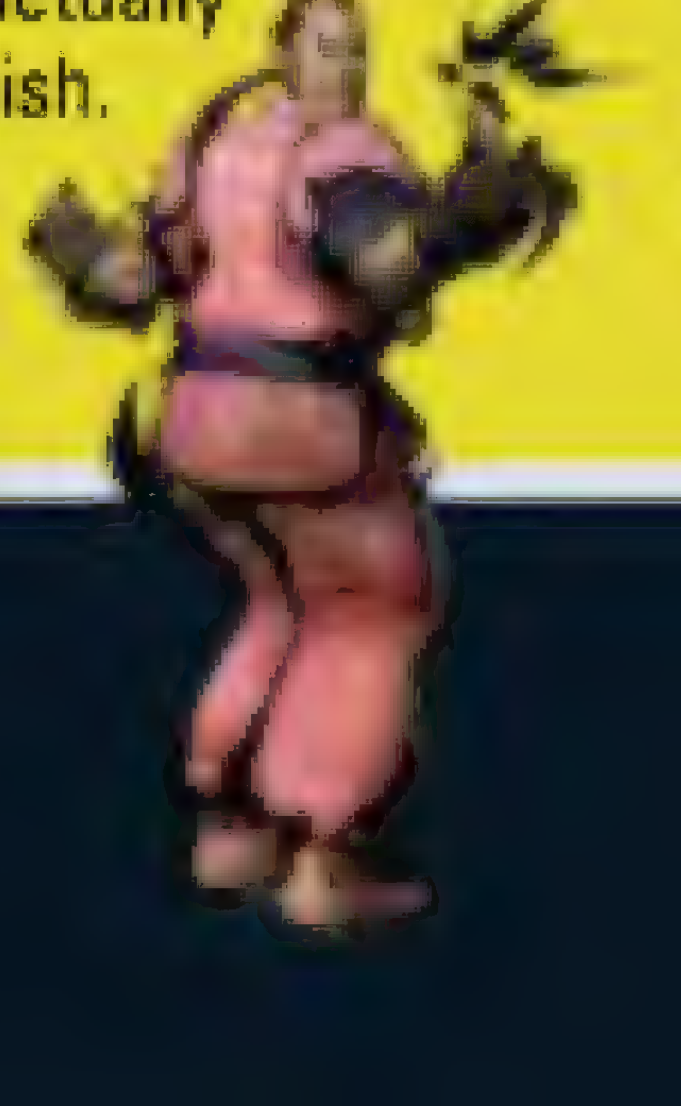


Cody

Final Fight veteran Cody makes his return here, after debuting in the *Alpha* sub-series. He's still rocking the convict look and chucks stones around like a child, plus he's apparently even left a knife on the floor in every place he might go.

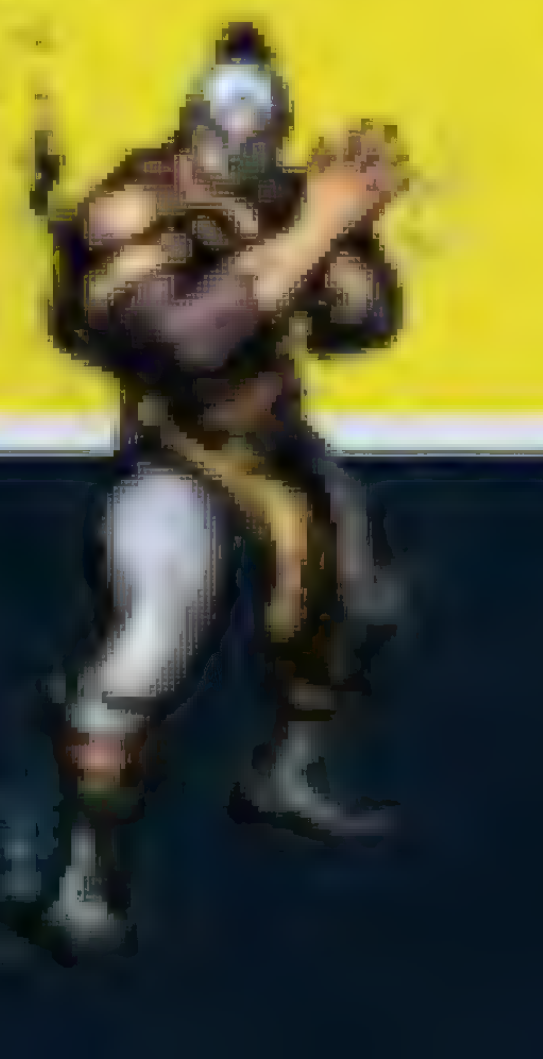
Dan

The series' leading joke character makes his main series debut, having been formally introduced as a parody of the way SNK were thought to be ripping off Capcom's fighters. And the strangest part about him? He's not actually rubbish.



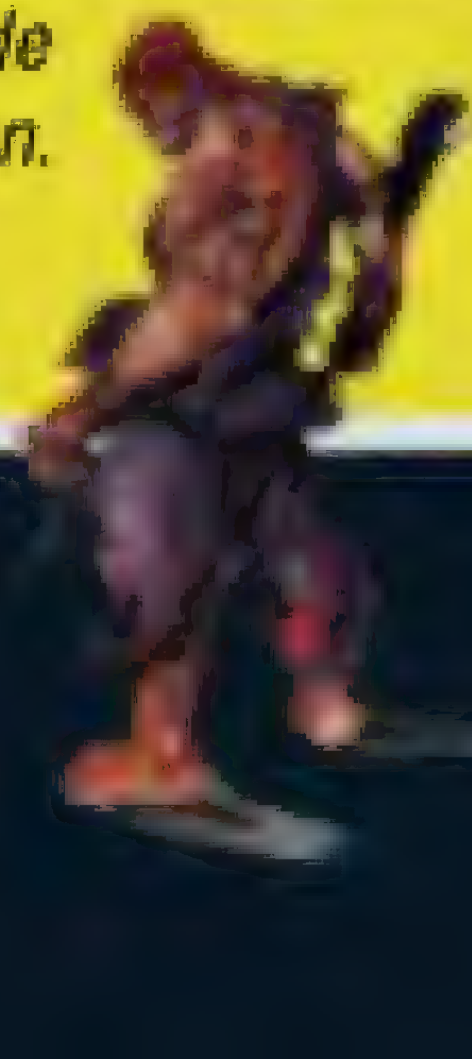
El Fuerte

It might have a couple of wrestlers already but Fuerte's spindly form, crazy speed and Lucha Libre skills set him apart from the stocky grapplers. He's an annoyance as much as a usable character, mostly because he never shuts up.



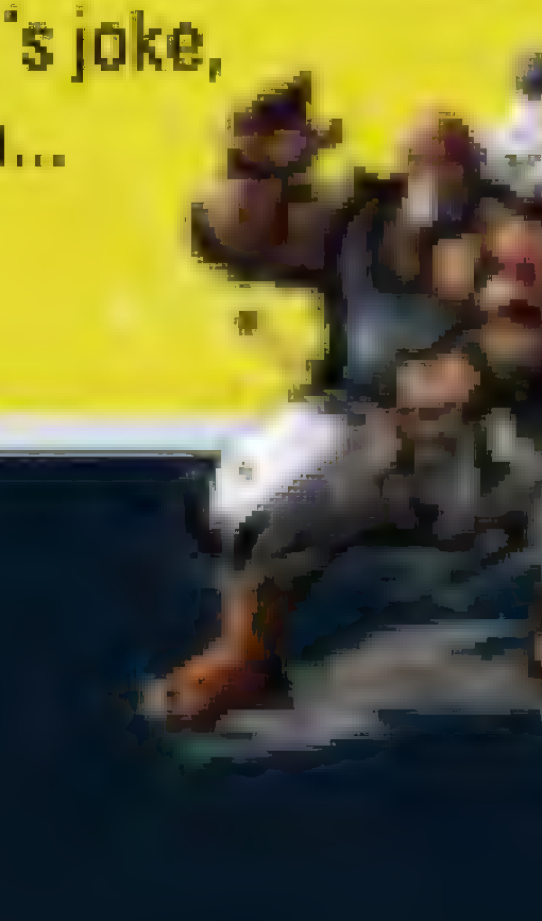
Evil Ryu

What would happen if Ryu's search for power took him down a darker path? He'd get a few new moves and be better at fighting, apparently. Makes perfect sense. Another *Alpha* callback, Evil Ryu entered the fray in *Arcade Edition*.



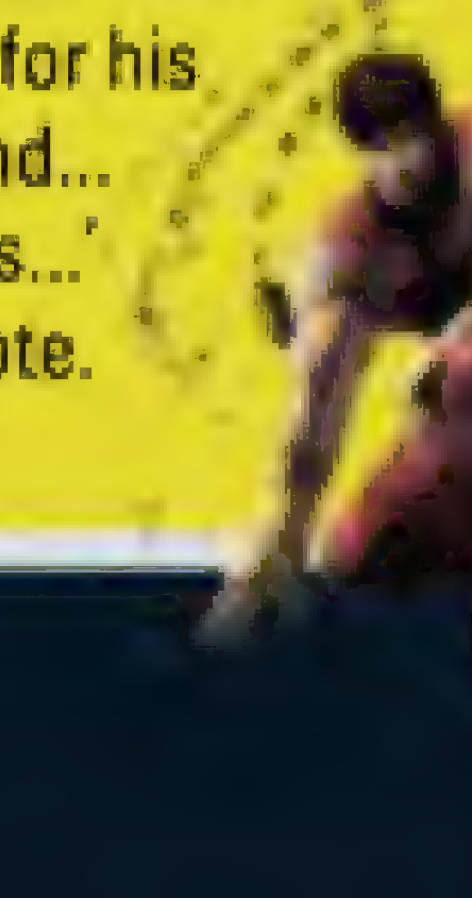
Gouken

'You must defeat Sheng Long to stand a chance', reads Ryu's original *SFII* victory quote. Well, now's your chance. Gouken *is* Sheng Long, Ryu and Ken's former master making his first playable appearance here. Not just an April Fool's joke, then...



Guy

Another *Final Fight* star, leaving Haggar as the only absentee. Still, he's busy fighting Galactus in *Marvel Vs Capcom 3*. Guy's American ninja awesome-looking combos won him many fans – we like him for his 'Profound... sadness...' win quote.

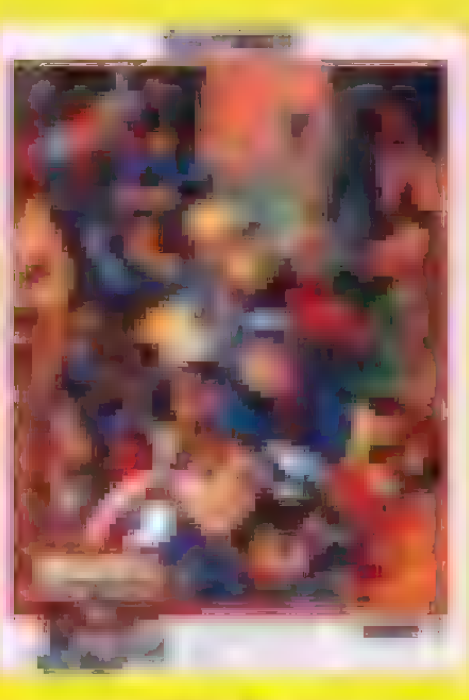


THE COMPETITION

Although the 2D fighter had been in hibernation for many a year, the odd quality example had still been trickling through – Arc's *Guilty Gear* franchise had evolved into something really special, while new IP *Battle Fantasia* captured some of the parrying magic of *SFIII*. Still, it's been *BlazBlue* that has offered the stiffest traditional competition to *SFIV*, the stunning 2D fighter playing as great as it looks, if perhaps without *IV*'s accessibility. 3D fighters have hit an all time high too, with *SoulCalibur*, *VF*, *Tekken* and even *DOA* better now than ever before. *Street Fighter* still just about rules – even with super-ridiculous crossover games wowing audiences with their nonsensical firework displays – but it's nowhere near the foregone conclusion it once was…

OTHER STREET FIGHTERS

Marvel Super Heroes Vs Street Fighter

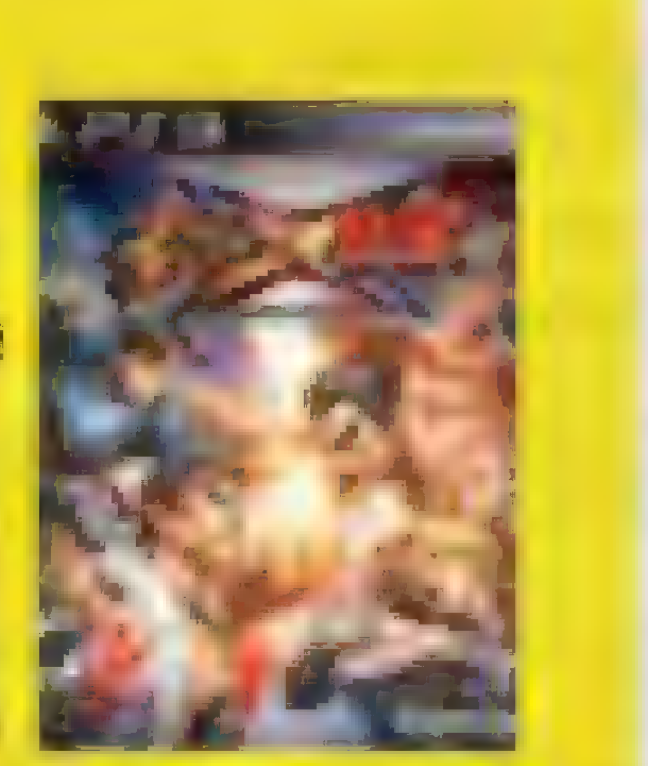


Pitting Marvel's finest nonsense warriors against a host of Capcom's martial artists may not have seemed fair. But by turning everything up to 11, Capcom managed to make it a frenetic and exciting crossover.

Capcom Vs SNK 2: Mark Of The Millennium 2001

Not strictly a *Street Fighter* game perhaps but Capcom's representatives in *CVS2* came predominantly from its leading fighting brand. Of all of the older crossover fighters, this is easily the one that still holds up best.

Street Fighter X Tekken



While hardly retro (on account of having come out this year, *SFXT* gave a mammoth cast of *Street Fighter* stars the chance to beat down 3D fighting's finest. And they did – though the *SF* guys and gals work way better in a 2D game.

WHAT IT INTRODUCED

- The Focus Attack: a chargeable crumple that absorbs blows and can be used to cancel attacks
- Full online integration, turning the whole world into your very own arcade
- Trials mode, an inventive way of practically teaching combos and skills

[Xbox 360] Dan used to be a joke character but in *SSFIV*, he's not entirely awful. Good, almost. Wow.

> "Capcom's timing in bringing back Street Fighter was perfect"

Hakan

What *is* Hakan…? He's red, has blue egg cartons on his head and fights by smearing himself in oil then throwing people around.

Juri

The hot-headed Korean S.I.N. agent was reportedly added in at the request of Capcom Korea, but her origin doesn't alter that she's an awesome character both to watch and play. She's also *Street Fighter*'s only Taekwondo practitioner to date.

Rose

The *Alpha* games gave us some great characters, with many of the best returning in *IV* and its variants. She was decent in vanilla *IV* but really came into her own in *Super*, with her second Ultra Combo, Soul Satellite.

Rufus

The fat guy hates Ken, so we really identify with him. Like *Tekken*'s Bob, his size belies his speed and with dive kicks and screen-spanning assaults aplenty, he's a force to be reckoned with. His moves flow so beautifully, he's a joy to play.

Sakura

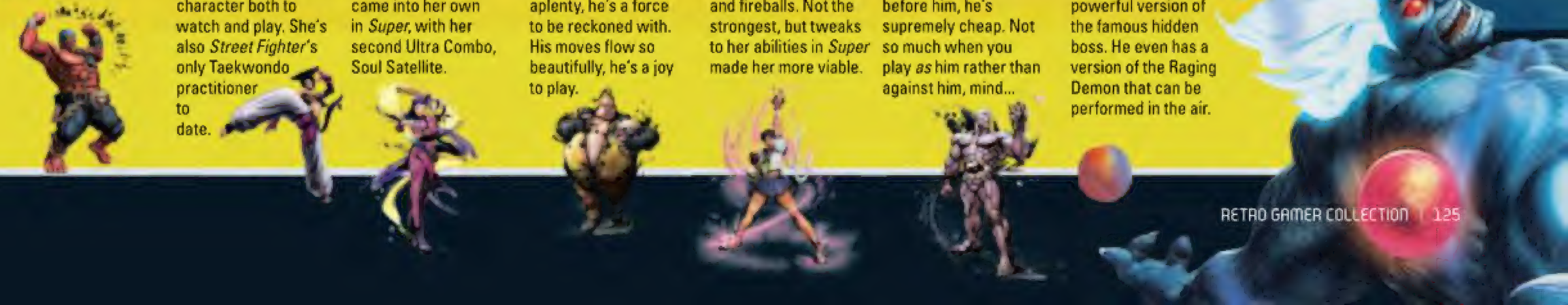
Ryu's protégé and another *Alpha* alumnus, Sakura returns in *IV* to offer players her own Hurricane Kicks, Dragon Punches and fireballs. Not the strongest, but tweaks to her abilities in *Super* made her more viable.

Seth

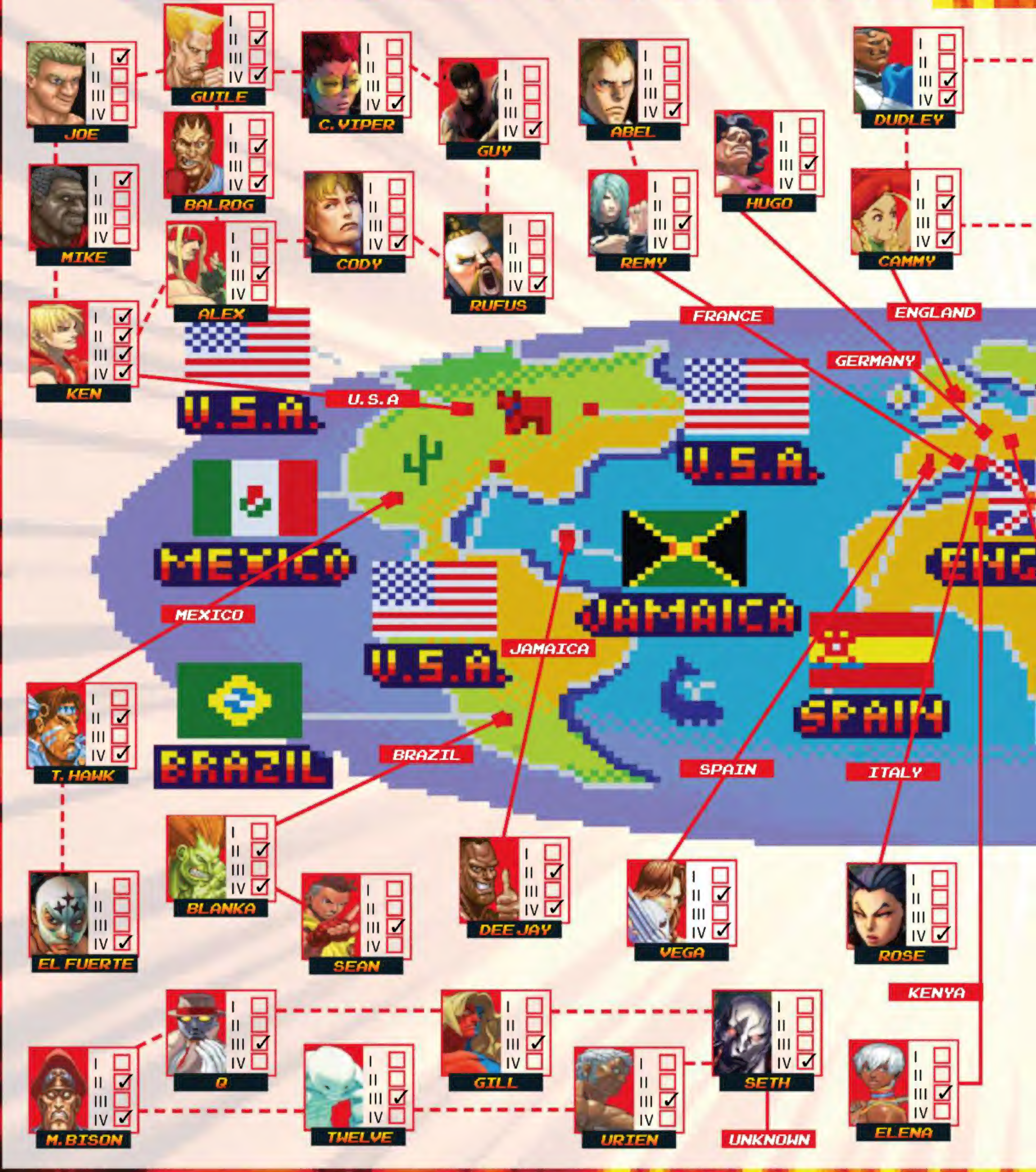
Named after former Capcom community manager and fighting game champ Seth Killian, this blue monster is *IV*'s final boss. And like Gill before him, he's supremely cheap. Not so much when you play *as* him rather than against him, mind…

Oni

Evil Akuma probably wouldn't have made much sense, so Capcom instead settled on Oni. That's what he is, though – a blazing, even-more-powerful version of the famous hidden boss. He even has a version of the Raging Demon that can be performed in the air.



THE WORLD WARRIORS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GUILE I ☐ II ☑ III ☐ IV ☑
C. VIPER I ☐ II ☐ III ☐ IV ☑
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ABEL I ☐ II ☐ III ☐ IV ☑
DUDLEY I ☐ II ☐ III ☑ IV ☑
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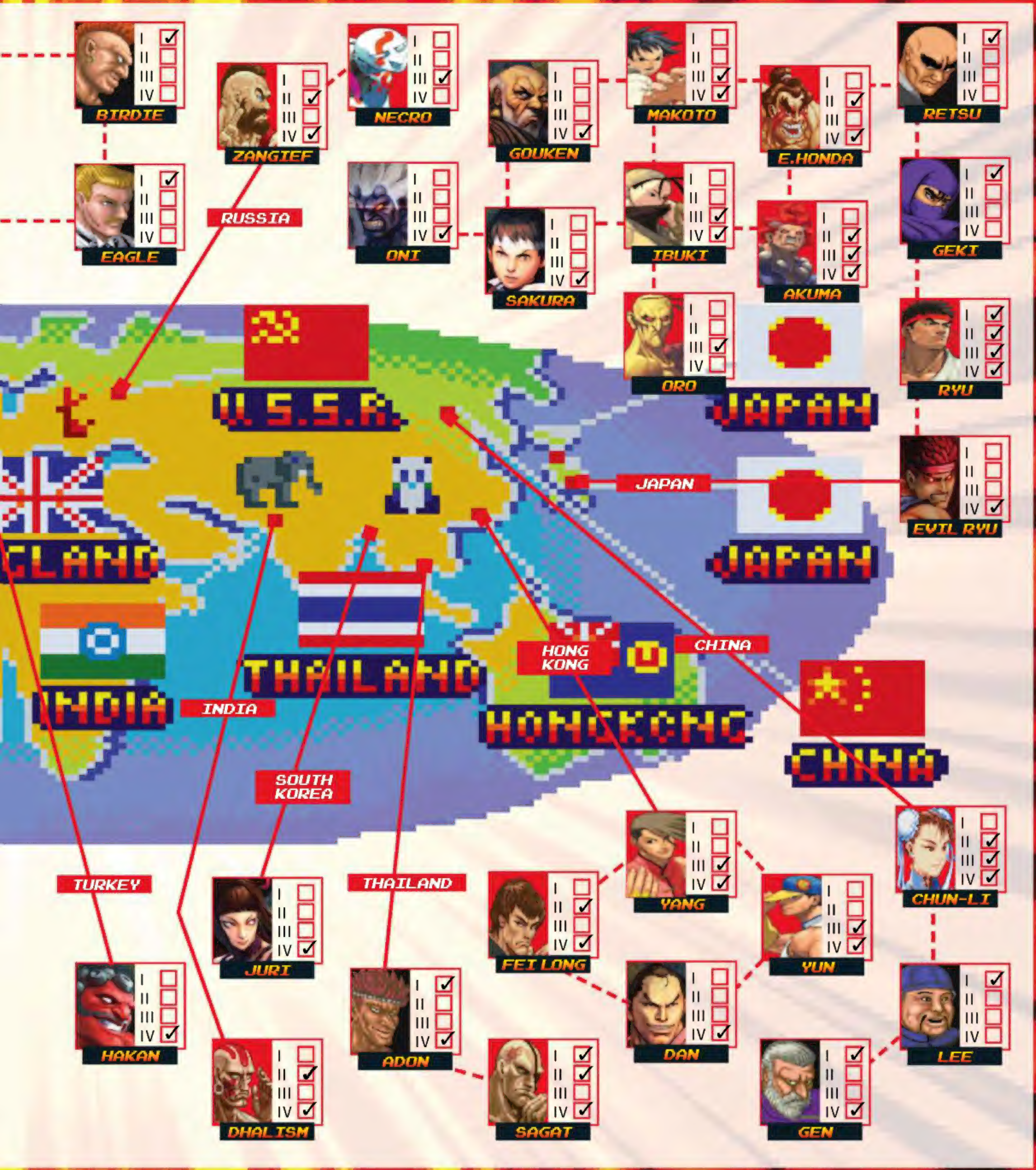
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Future Classic

retro GAMER
ICO
IN THIS ISSUE OF RETRO GAMER

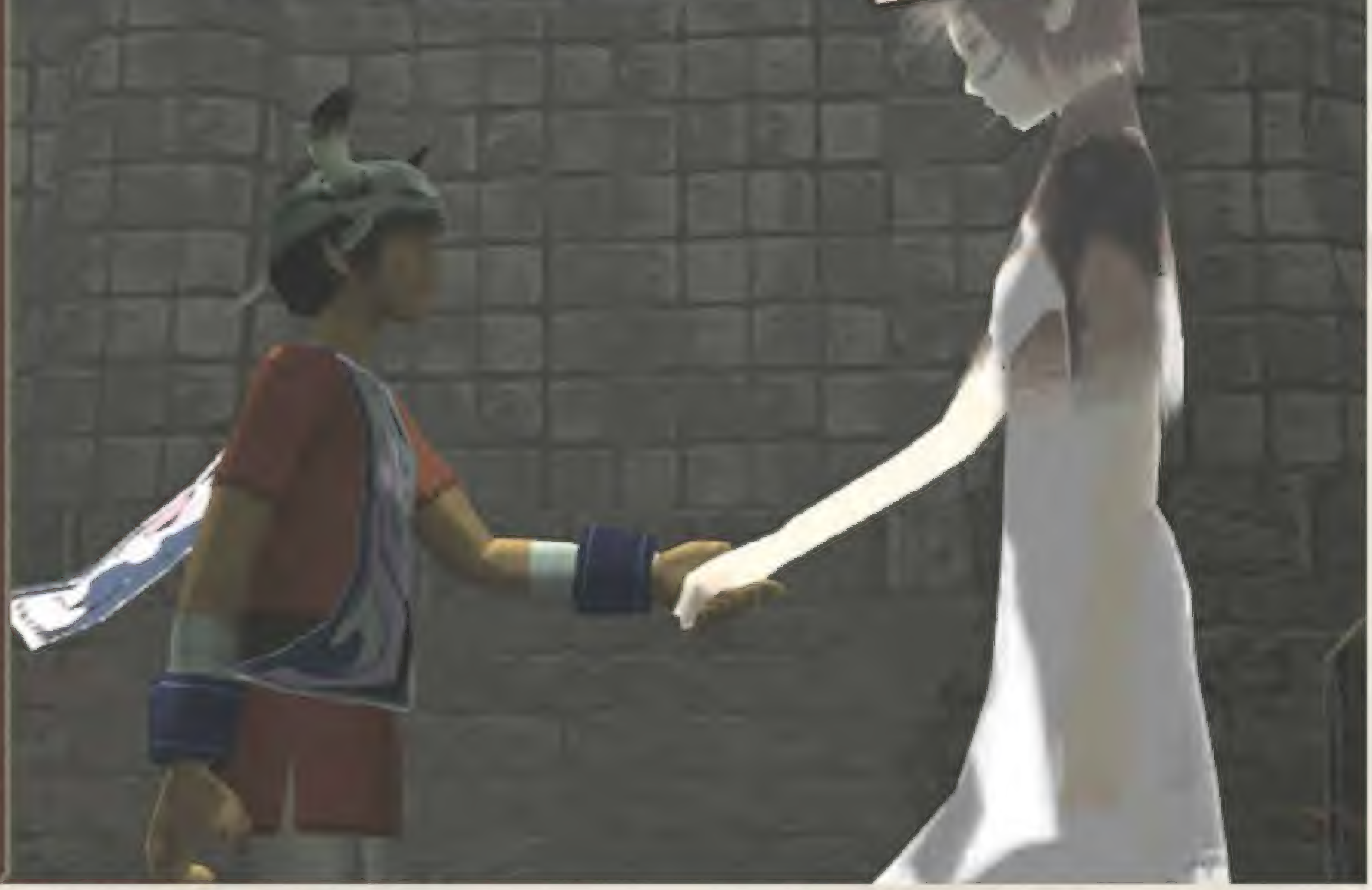
Modern games you'll still be playing in years to come

INFO

- **Featured System:** PS2
- **Year:** 2001
- **Publisher:** Sony
- **Developer:** SCEJ/Team Ico
- **Key People:** Fumito Ueda (director, lead animator, character design, game design), Kenji Kaido (producer)

GO DEEPER

- **The American release of *Ico* used a different, much-maligned boxart to the painted one seen in Japan and Europe – it was subsequently ditched when the game was re-released on PS3.**
- **A big point of inspiration for *Ico* was *Another World*, which has tonal similarities to the PS2 title.**



ICO

A sign of gaming's growing storytelling maturity, Ico is a lonely and compelling adventure that gave the PS2 its first cult classic…

THE BACKGROUND

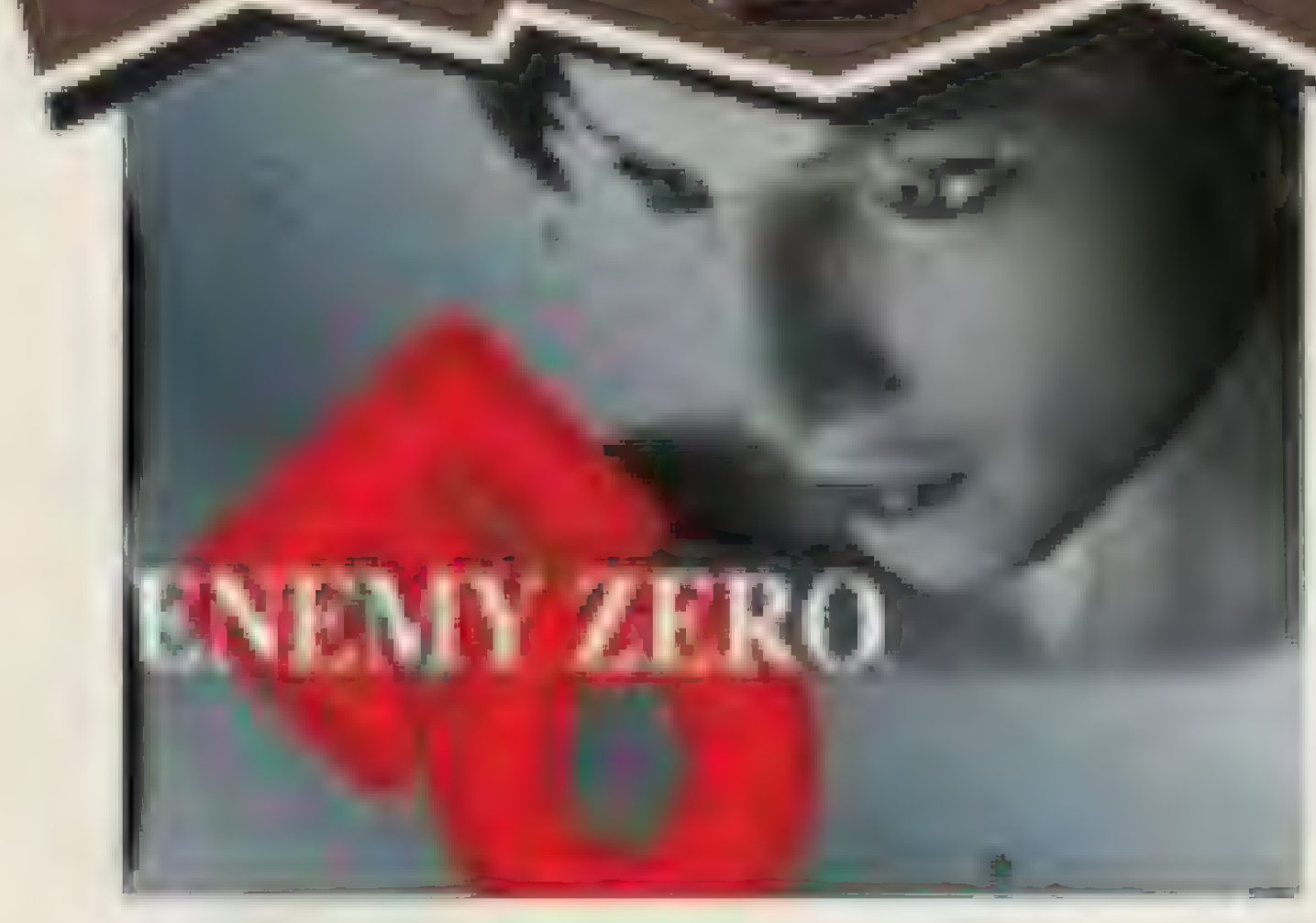
The four-year development cycle of *Ico* began when Fumito Ueda showed a short movie to Sony, encompassing the basic idea of *Ico*: the castle, the able lad and the enigmatic princess were all there, with sunlight pouring into open environments along with shadowy halls to contrast them. Ueda, who taught himself to animate, sought to tell the story through his characters' expressions. Kenji Kaido, who'd overseen the big hit *Ape Escape* for Sony, teamed up with Ueda to bring his vision to life.

Ico was made by a super-small team of just 20 people, with Ueda reluctant to give up control of too many aspects of the product – he took on the role of lead artist, designer and creative director and often stayed overnight to get the game done. Originally destined for PSone with a slightly less ethereal look (Ico didn't originally have horns but Yorda did, though the castle seemed largely the same) the game shifted development to PS2 and a more coherent visual style emerged, a result of the team's make-up of mainly artists and programmers. While critically acclaimed from the moment it was released on PS2, *Ico* performed poorly at retail, becoming a collector's item until popular demand led to a reprint to coincide with *Shadow Of The Colossus*, the team's next title.

THE GAME

Ico is a sad, lonely trek through a cavernous castle that sees a boy, exiled from his kingdom because of the horns on his head, escorting Yorda, an enigmatic princess, out of the fortress in which they're both imprisoned. On the surface, there's not really a lot more to it – as Ico, you're keeping Yorda alive as you go, fending off shadowy beings that try to drag her into the darkness. Essentially, *Ico* is a five-hour escort mission broken up by extended, smart puzzles, but this relatively easy game is defined by its overwhelming sense of atmosphere, with an eerily beautiful world that underlines the mournful tone of the story.

Things of note



Ueda's origins

Fumito Ueda's first game was actually *Enemy Zero* on the Saturn and PC, released in 1996. The director has been overseeing his own projects since then.

Ico on PSone

Ico was originally destined for release on the PlayStation – there's plenty of footage out there of the original version, and it certainly looked too ambitious for Sony's first hardware.

Ico's mystery language

Ico had its own alphabet developed by the team at SCEJ, spoken by Yorda, who doesn't share the same language as Ico. Hence why their communication is always so brief…

CLASSICS HD
ICO
SHADOW OF THE COLOSSUS

Ico: 2001, 2006, 2011

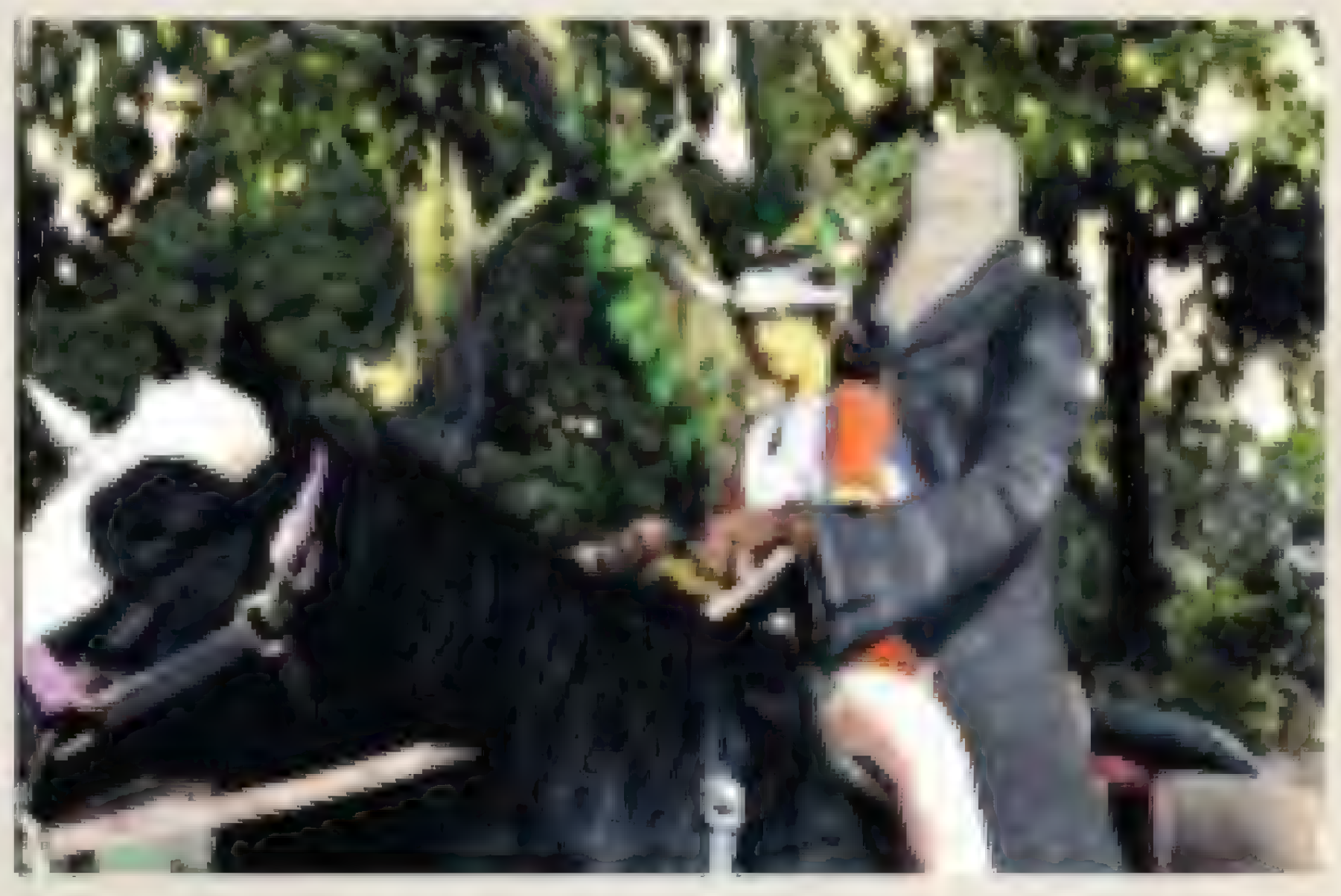
Ico was initially very hard to find in the UK, with only 50,000 copies out there – it has subsequently been re-released on PS2 in 2006 and on PS3 in 2011.

Missing co-op mystery

Shipping on a CD-ROM in the States as opposed to a DVD, like we got in the UK, the post-completion co-op in *Ico* was actually missing from the NTSC version of the game.

» [PS2] *Ico*'s very specific washed-out colour scheme would be maintained in the team's subsequent projects.

» [PS2] Ico's first meeting with Yorda is certainly one of modern gaming's more iconic moments.



» [PS2] The origin of the cursed horned children is explored in spiritual successor/prequel *Shadow Of The Colossus*.

What the press thought

Play
Score: 90%
"The save-the-girl-and-solve-the-puzzles game is a true modern classic."

PLAY
VIRTUA FIGHTER

Gamespot
Score: 8.5
"The game is undoubtedly driven by its smartly crafted aesthetic mood, though its production never compromises the gameplay it provides."

Looking at it now, the most forward-thinking touches are the lack of a HUD and, far more importantly, the economy of cutscenes in telling the story. There's not a lot to know beyond the reasons why Ico and Yorda are imprisoned – but their emerging bond and your interactions in keeping her safe creates something that really beats anything a cutscene can provide. Sure, it sounds a little emo, and yeah, *Ico* definitely falls into that bracket of games that deliberately aim to provoke sad feelings from the player. But those moments are well-earned, particularly later in the story where it really gets tricky to solve puzzles while keeping Yorda safe and you've spent more time with both protagonists.

As you learn more about the background of the castle and Yorda's true nature, *Ico* becomes somewhat heartbreaking, particularly in its closing hour when you get the sense your young hero is too naïve to really know what he's up against. That's the brilliance of *Ico*, really – mechanically, it's a quality puzzler/platformer hybrid with some seriously smart environmental brainteasers, but your empathy for the hero's plight, and the relationship that organically grows between the two characters is the real appeal to this masterpiece. The bizarre, always windswept pocket universe in which the game is set is just fascinatingly put together, and you only ever feel like you're getting a tantalisingly small glimpse at the whole picture. You know about as much about what's going on as Ico does; it's an effective means of showing rather than telling with storytelling that builds a connection with your hero's mindset.

This world and its characters are why everyone always argues for Team Ico's games as examples of art, of course. That's certainly a pointless overall argument due to the fact it's been overplayed and endlessly unresolved, but the reasoning behind that kind of opinion is obvious: *Ico* definitely transcends the sum of its familiar parts in the telling of Ueda's story.

Players experience something they don't get anywhere else that makes them feel like they've stumbled across some kind of milestone in narrative design. That's just a positive reaction, full-stop, and while we should never feel like we have to justify games to people who don't really get them, there's plenty about *Ico* that's worth arguing for in the face of critics who doubt the legitimacy of interactive storytelling, seen recently in games like *The Walking Dead* or *Journey*. For the rest of us, it's another sign that the evolution of interactive storytelling is always making positive progress.

WHY IT'S A FUTURE CLASSIC

Ico and its spiritual successor, *Shadow Of The Colossus*, invoke similar feelings in the player through the bleakness of their shared universe, but *Ico* is unique because of the attachment it forges between you and its characters. The small details in animation really make this feel like a forward-thinking game – watching Yorda chasing birds away or admiring the sights are the only clues you really have to go on with this travelling companion, and it's a far richer way to portray a character than detailing a massive backstory or relentless voiceovers funnelled through bad actors.

This is reserved, smart and timeless storytelling, the likes of which we can still only see in trace forms across modern videogames. *Ico*, for that reason, is a genuinely mature work. It gives us a mystical world where we're forced to fill in the blanks, and a gameplay dynamic that makes us think beyond the basic categories of the genres it crosses into. Contemporary games like *The Last Of Us* or *BioShock Infinite* owe much to *Ico* in terms of the way developers think about AI companions, and finding a balance that means such games never feel like extended escort missions – *Ico* got that just right. That dynamic between player and AI reached its next logical stage with this title.

THE MAKING OF

CARRIER COMMAND

We talk to Ian Oliver from Realtime Games and Gary Sheinwald and Ricardo Pinto from Rainbird Software about how they made the original, futuristic seafaring 3D arcade and strategy game, Carrier Command

CARRIER COMMAND
RAINBIRD

» This *Carrier Command* sticker was seen stuck to the windows of the Rainbird offices in central London.

CARRIER COMMAND LOADING SCREEN ART COURTESY OF HERMAN SERRANO, VISIT WWW.RAWSUNLIGHT.DAPORTFOLIO.COM FOR MORE INFORMATION

3D Tank Duel, 3D Starstrike and *Starstrike II* were all high profile 8-bit 3D titles that put Realtime Games on the gaming map in the mid-Eighties. Co-founders Andy Onions, Graeme Baird and Ian Oliver had met whilst studying a Computer Science Degree at Leeds University, as Ian explains. "We were very different people, but we had one thing in common. The University wasn't quite sure what to make of us, and vice versa!"

The three graduates ended up writing *3D Tank Duel* during their final year, a game that was heavily inspired by Atari's *Battlezone* coin-op. They published the game in early 1984, netting over £21,000, which was a fortune back then. "That made writing further games a no-brainer!" recalls Ian happily. Realtime quickly became far more proficient at coding for the Z80, and as a result, its second game came together in just a few months.

"*3D Starstrike* for the Spectrum and Amstrad CPC sold 55,000 copies and we made four pounds per copy. Life was good!" says Ian fondly, recalling their Atari *Star Wars* coin-op inspired 3D arcade blaster. A few months later, work began on the inevitable sequel. *Starstrike II* used shaded polygon 3D, which was a technique still in its infancy. However, after being inspired by two Atari 3D vector coin-ops for their first two offerings, Realtime had an epiphany with the sequel.

"It was then that we discovered cloning an existing game was a lot easier than creating one from scratch!" admits Ian. The result was that *Starstrike II* was finished extremely late. So late that when it finally pushed the Spectrum version out of the door, it realised that the UK games industry had changed. Distributors, publishers and developers alike were forced into becoming more professional as the market matured. Unfortunately, Realtime had failed to enlighten the press or the distributors about its *Starstrike* sequel until it was almost finished, resulting in a severe lack of reviews and sales when they needed the revenue most. "*Crash* magazine gave us a cracking review, and the smaller distributors and retailers were still a significant part of the market, but it didn't set the world alight," recalls Ian sadly.

Just when things were starting to get tight, Realtime received a phone call from BT-owned Rainbird Software that was to forever change its fortunes… "Rainbird wanted to discuss Z80 ports of Jez San's *Starglider*," says Ian. "But one thing led to another. Suddenly we had a publisher and they even stepped in to publish the Amstrad CPC version of *Starstrike II*."

That deal lifted some of the pressure and the advance payments from Rainbird gave Realtime the chance to buy some better development tools in the form of the Programmer's

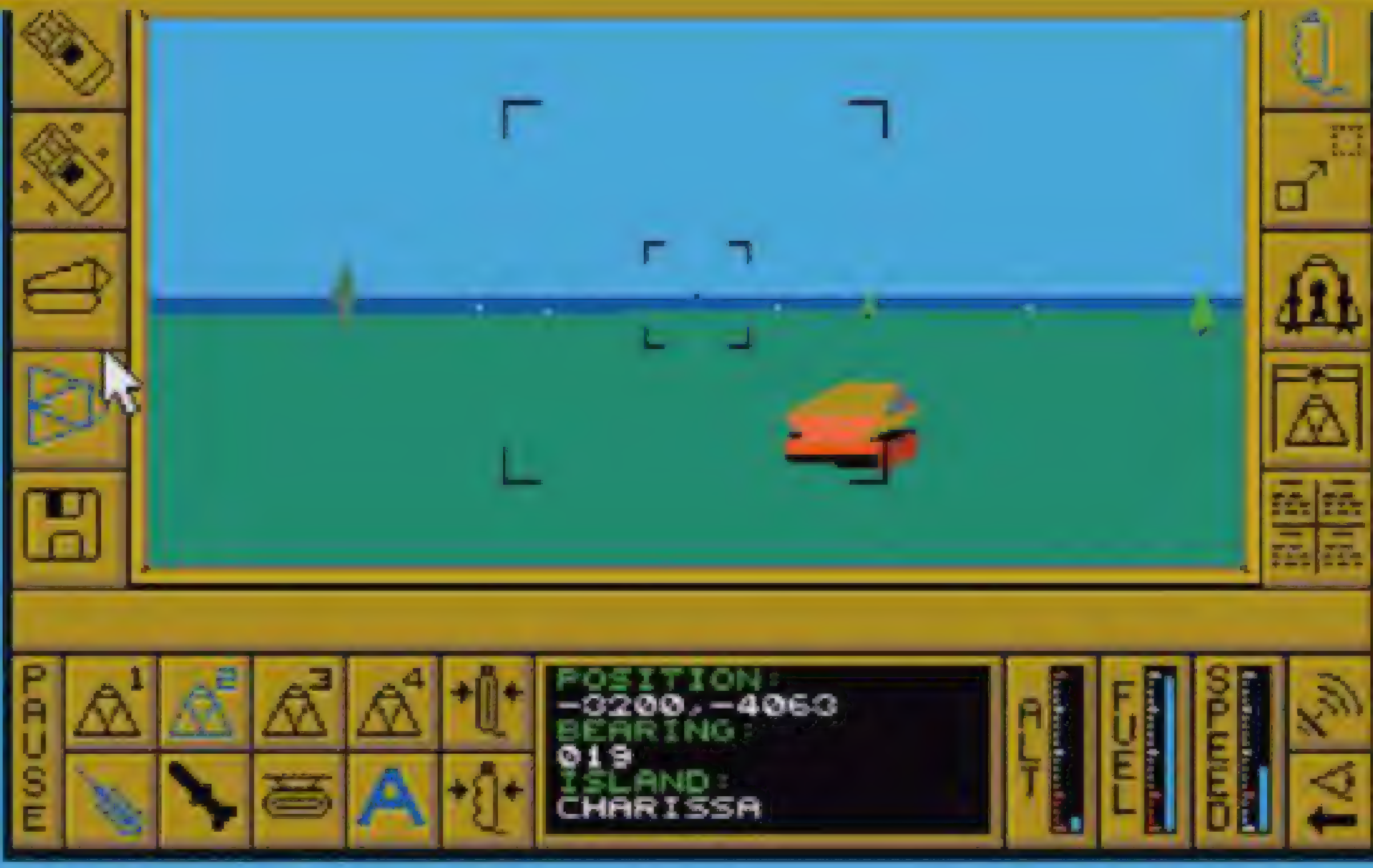
▶

IER COMMAND

IN THE KNOW

- **» PUBLISHER:** RAINBIRD
- **» DEVELOPER:** REALTIME GAMES
- **» RELEASED:** 1988
- **» PLATFORM:** AMIGA, ATARI ST, PC, AMSTRAD CPC, ZX SPECTRUM, COMMODORE 64, APPLE MACINTOSH
- **» GENRE:** SIMULATION

> I was young and foolish and clearly thought that anything was possible!
>
> IAN OLIVER



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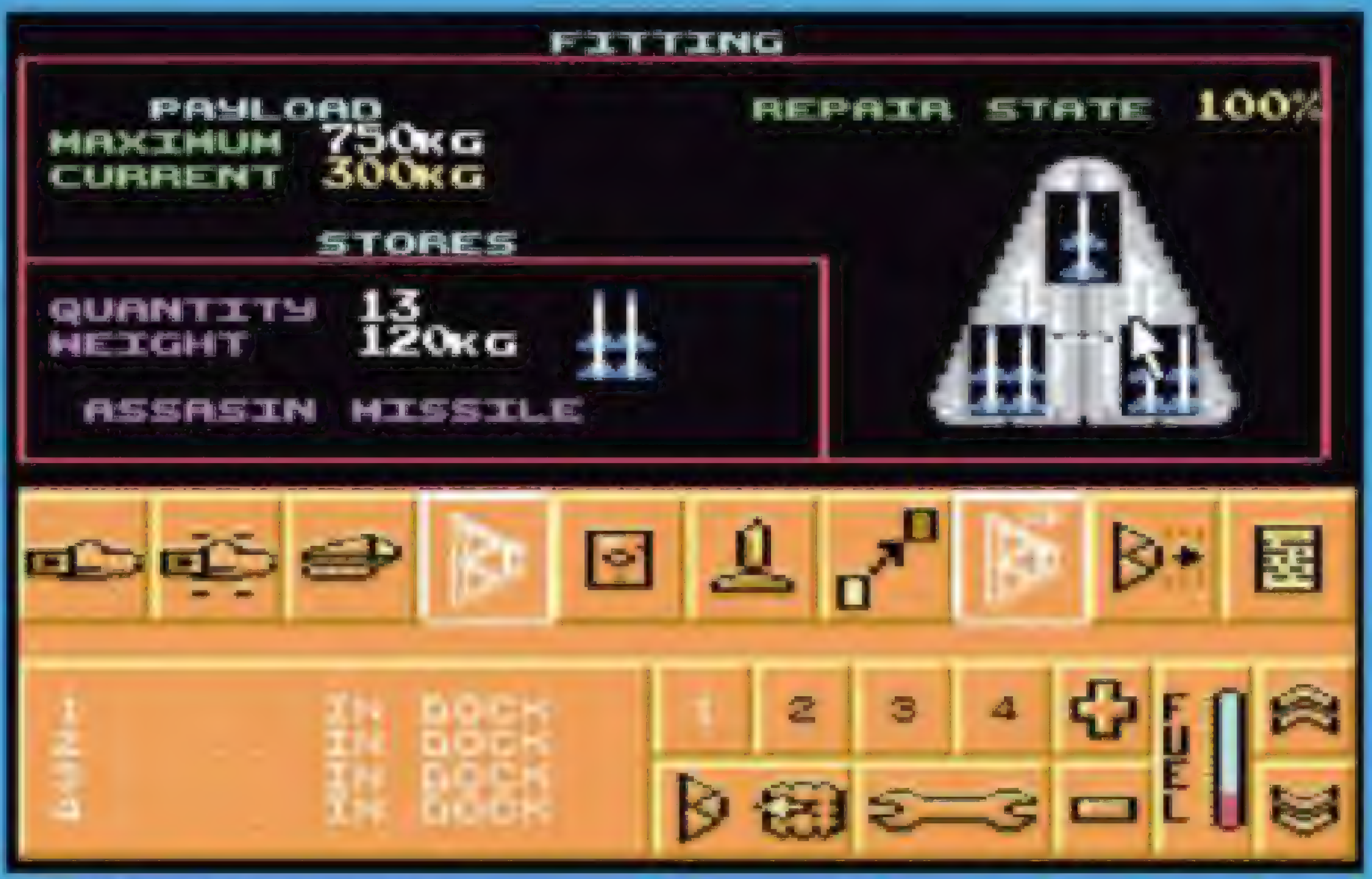

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PAYLOAD
MAXIMUM 750KG
CURRENT 300KG

REPAIR STATE 100%

STORES

QUANTITY 13
WEIGHT 120KG

ASSASIN MISSILE

IN DOCK
IN DOCK
IN DOCK
IN DOCK

» [C64] Fitting a Manta in the C64 version.

▶ Development System, better known by the acronym, PDS. This move had a significant effect, as Ian recalls. "Our productivity and our general mental state soared and we polished off a slew of Z80 versions of *Starglider* ahead of schedule, which doesn't tend to happen! We even finished before the lead ST and Amiga versions of *Starglider* were complete!"

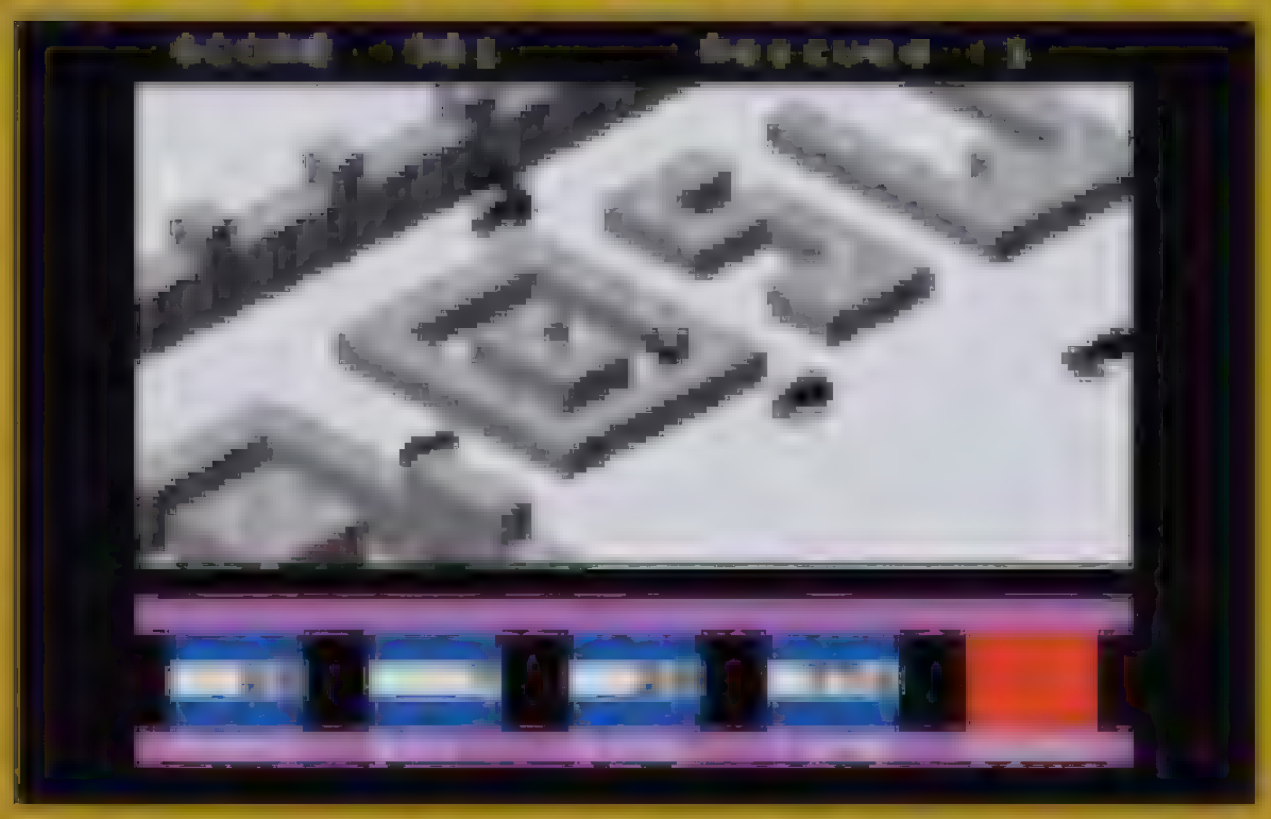
The fact that Jez San got more money for his 16-bit originals and a cut of the royalties on Realtime's Z80 versions didn't go unnoticed in Leeds, as Ian explains. "That's when we decided that our future lay in producing original product for the new 16-bit machines." A Publication Agreement was signed with Rainbird on 19 March 1987 for an original game with a working title of *SCS* for the Atari ST, Apple Macintosh, Commodore Amiga, IBM PC, 48k and 128k Spectrums, Amstrad CPC and Amstrad PCW. Incredibly, the agreement signed by Ian Oliver committed Realtime to producing the lead Atari ST version in just over four months, with each subsequent version following in monthly intervals through to the end of 1987. "I signed that contract the day after my 24th birthday. I was young and foolish and clearly thought that anything was possible!" says Ian, laughing. But what was this *SCS* named as the working title in the agreement?

"*SCS* stood for *Submarine Combat Simulator*," reveals Ian. Rainbird publisher Paul Hibbard had hired an external freelance designer, whom Ian spoke to a few times. Unfortunately, it became clear quite early on that his submarine design wasn't going to work out, as Ian remembers. "This guy was coming up with page after page of ever more complex monsters and undersea volcanos, which didn't gel at all with what we wanted to do." In the end, the submarine game was scuttled and a new idea was needed, "…but by then we had sci-fi and the sea in our heads!" adds Ian. Clearly, the general scenario if not the game design itself was going to have an influence on what came next.

Thankfully, back at Rainbird there was a back-up plan involving Ricardo Pinto, Clare Edgeley and Gary Sheinwald. Ricardo was formerly a programmer who had worked on *Gyron*, *Hive* and the Z80 conversions of *Elite* for BT before joining the publisher as a project manager. "Paul Hibbard asked if I could think anything up," says Ricardo, who is now a fantasy writer with a string of successful novels behind him. "My core proposal was something along the lines of a carrier force, fighting another carrier force across an archipelago."

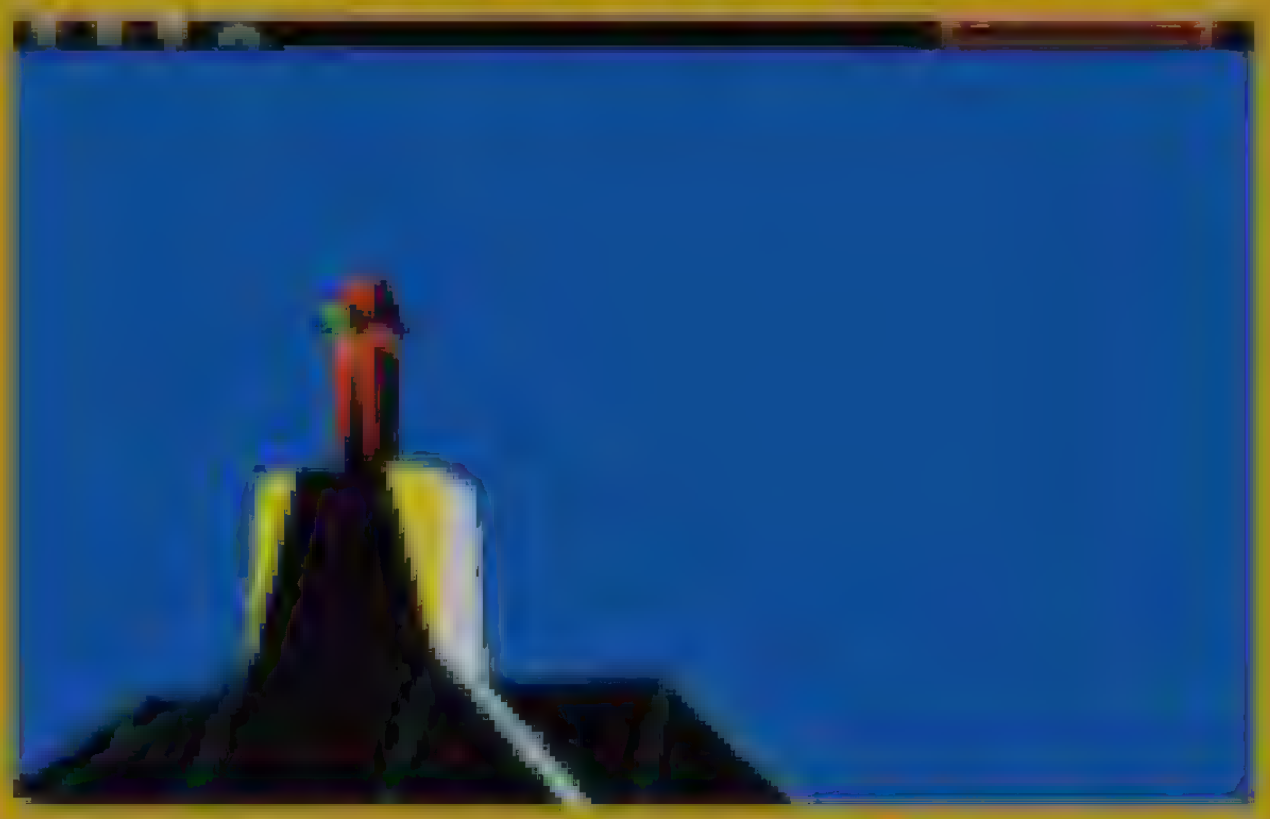
Gary Sheinwald remembers sitting in the Rainbird office and swapping ideas with Ricardo on the aircraft carrier design, although his recollection of where the idea originally came from differs

BRAVE NEW WORLDS: 10 OTHER GAMES THAT DEFINED 3D



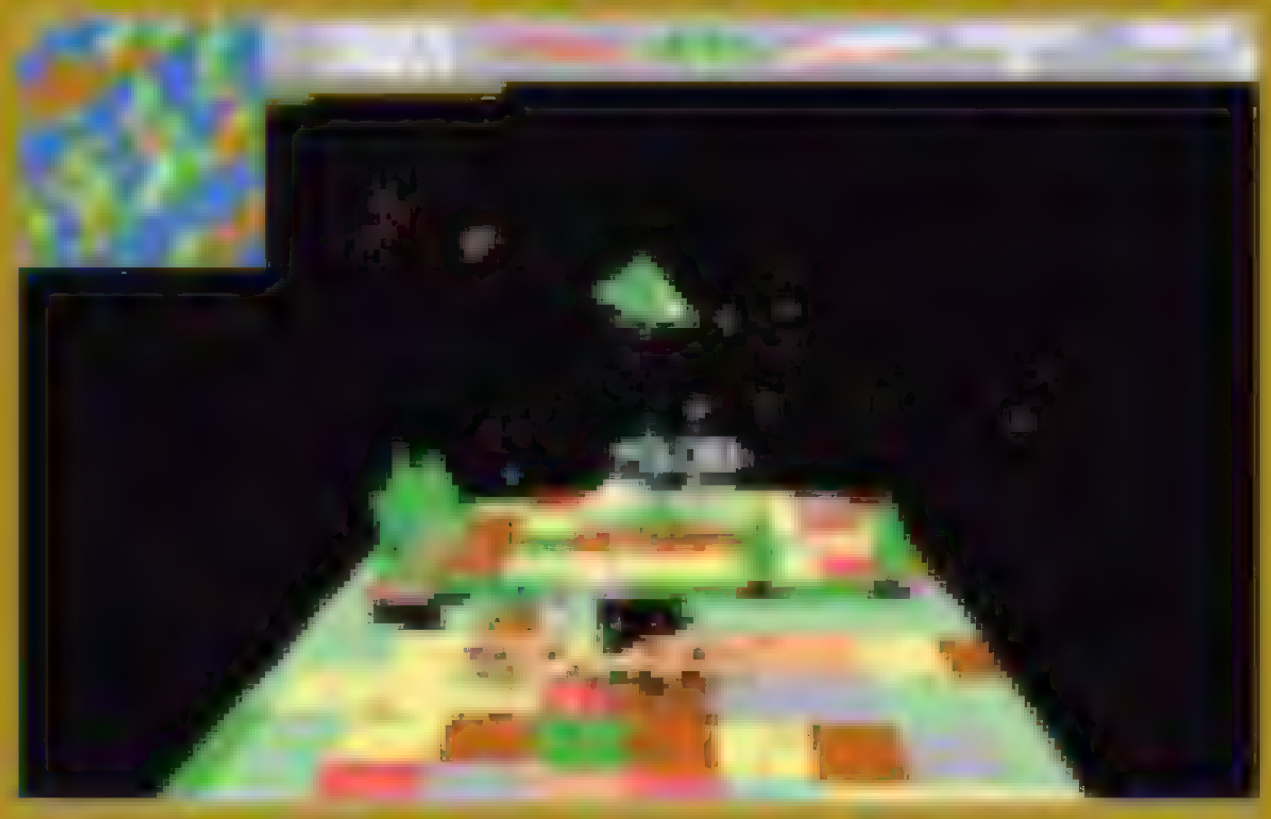
3D ANT ATTACK (1983)

■ The first game on the Sinclair Spectrum to employ solid 3D and an isometric viewpoint, *Ant Attack* set down a marker for others to follow. The 'Soft Solid 3-D' technique, combined with Angela's graphics presented an experience like no other. Sandy's subsequent game *I, Of The Mask* featured faster, more solid 3D but lightning wasn't caught twice.



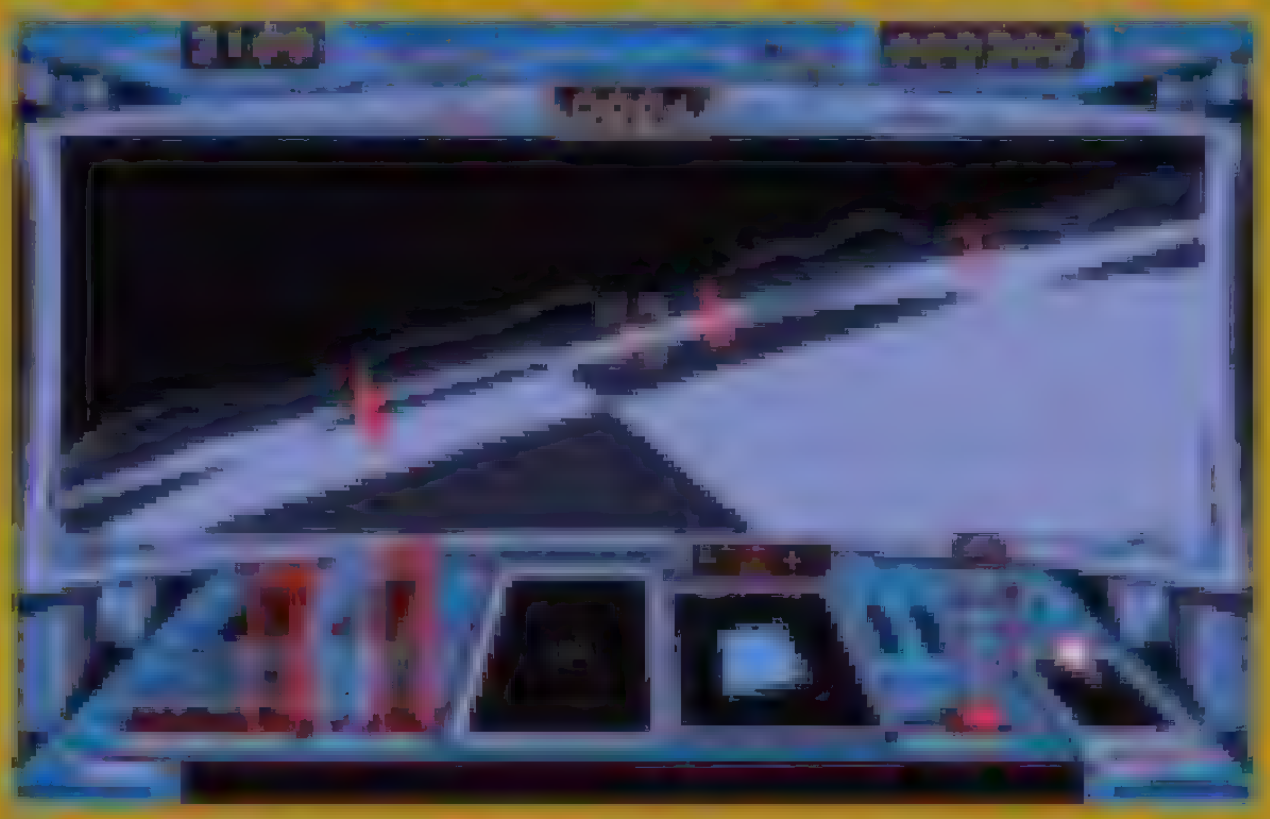
THE SENTINEL (1986)

■ Although set in an abstract, chess-like 3D world, Geoff Crammond's *The Sentinel* was immersive thanks to the tension that built as the eponymous sentinel turned its gaze across the polygon landscape. The 3D was slow on the 8-bits, but the later ST, Amiga and PC versions were faster. If you want a modern interpretation, seek out *Zenith*.



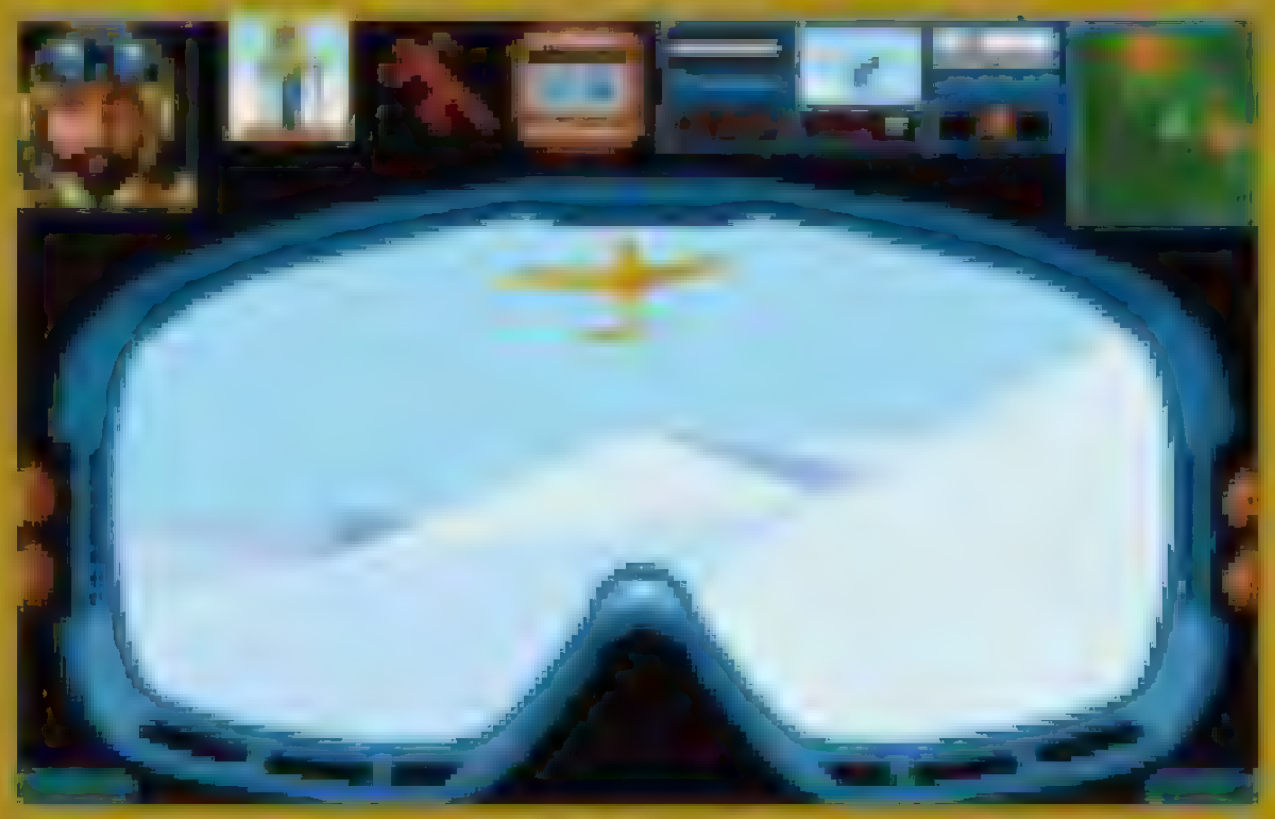
VIRUS (1987)

■ *Virus* is like marmite. You either love it or hate it. It's either got the best control system for a true 3D shoot-'em-up or it's got the most finicky, infuriating controls ever designed. There's no denying the brilliance of the 3D graphics though, and there's a free modern remake called *Z-Virus* that shows an even larger 3D world beyond.



STARGLIDER 2 (1988)

■ Jez San's sequel to his own *Starglider* game featured a whole solar system of planets to fly to and explore both above and below the ground. The esoteric space whales, sun fly-bys for refuelling and battles with space pirates were all in quick 3D. The game came out six months after *Carrier Command*, giving *Rainbird* two 3D smashes in the same year!



MIDWINTER I/II (1989)

■ Mike Singleton's epic strategy game, set on the island of Midwinter. It featured a 3D world that depicted snowy mountains and a number of different ways to travel across the island, on skis, by gliding or driving snow vehicles. The light source shaded 3D polygons added an extra level of realism to the world which Maelstrom used again in the sequel.

slightly. "I can remember the brainstorming session where Clare came up with the idea, and then Ricardo and I sitting at my desk coming up with the basic gameplay and features, then him walking over to his desk across the office and typing it up." The document they created was six pages long. It contained many elements familiar to any *Carrier Command* fan. The game was called *Strategic Carrier Simulation*, which was curiously the same acronym as the aborted submarine design. Although he can't remember the exact reason, Ricardo has a plausible theory as to why they both shared the same initials. "Remember that Rainbird was a subsidiary of BT and that masses of documents would already have been handed 'upstairs', so to change the name completely would have only confused people."

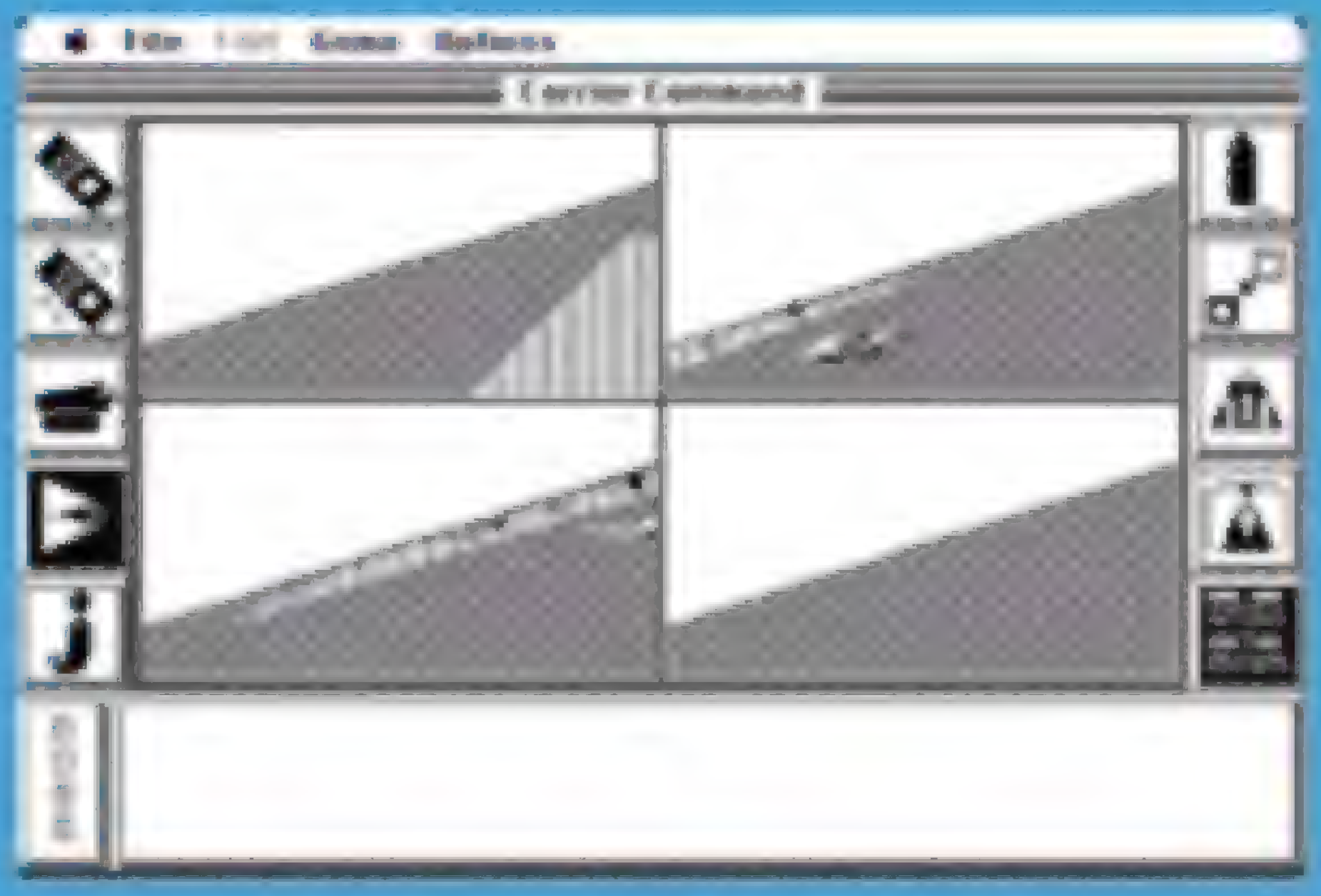
A few short weeks after Rainbird's six page document was sent, Realtime faxed a response back to Gary Sheinwald, dated 4 August 1987. Clearly the dates in the original agreement were extended, as there wasn't even an agreed design yet the completion date on the Atari ST version was 31 July, a date that had already been and gone! "Once Rainbird saw that we were actually creating something pretty good, we managed to get more time and further advances," reveals Ian.

Split into eleven brief sections, Realtime's five-page response covered the world the game was to be set in, an overview of the ultimate objectives, a description of the islands and a breakdown of other game features like building control centres, why the player would want to capture enemy control centres and so on. "We kept the original Rainbird document on our office wall, and pulled out ideas that were woven into the final game," explains Ian. "There is an old adage that success has many fathers whereas failure is an orphan!" he adds. "I'm happy to accept that *Carrier* had many fathers, and elements were drawn from both teams, but it was ultimately down to what we could actually code and Graeme and I were quite obstinate at the time and clearly acted as final arbiters."

At Rainbird, the game quickly adopted the title *Archipelago*, based upon the opening paragraph of their initial design document, which stated: "The war is to be fought over a long archipelago. The main line of islands is strung out from north to south, with the player's main base being located on the most southern island and the enemy's being located on the most northern."

As development began in earnest, Ricardo Pinto's focus shifted to his own strategy design called *City States*. Soon afterwards, he decided to leave TelecomSoft and go freelance, working on game designs including the abandoned *EPT* – ironically for Rainbird – and *Cybercon III*, published by U.S. Gold. Gary Sheinwald became the day-to-day producer on *Archipelago* and still harbours clear memories of the early versions that Realtime produced in late 1987. "I remember asking them to change the colours of the game since almost everything in it was black or very dark," says Gary, who is clearly quite proud of his involvement from the publisher's end. "I came up with the acronyms MANTA and WALRUS for the vehicles, I wrote the manual, photocopying the 'Top Secret' front cover about fifty times to make it look like a faded ink stamp and I also named most of the islands".

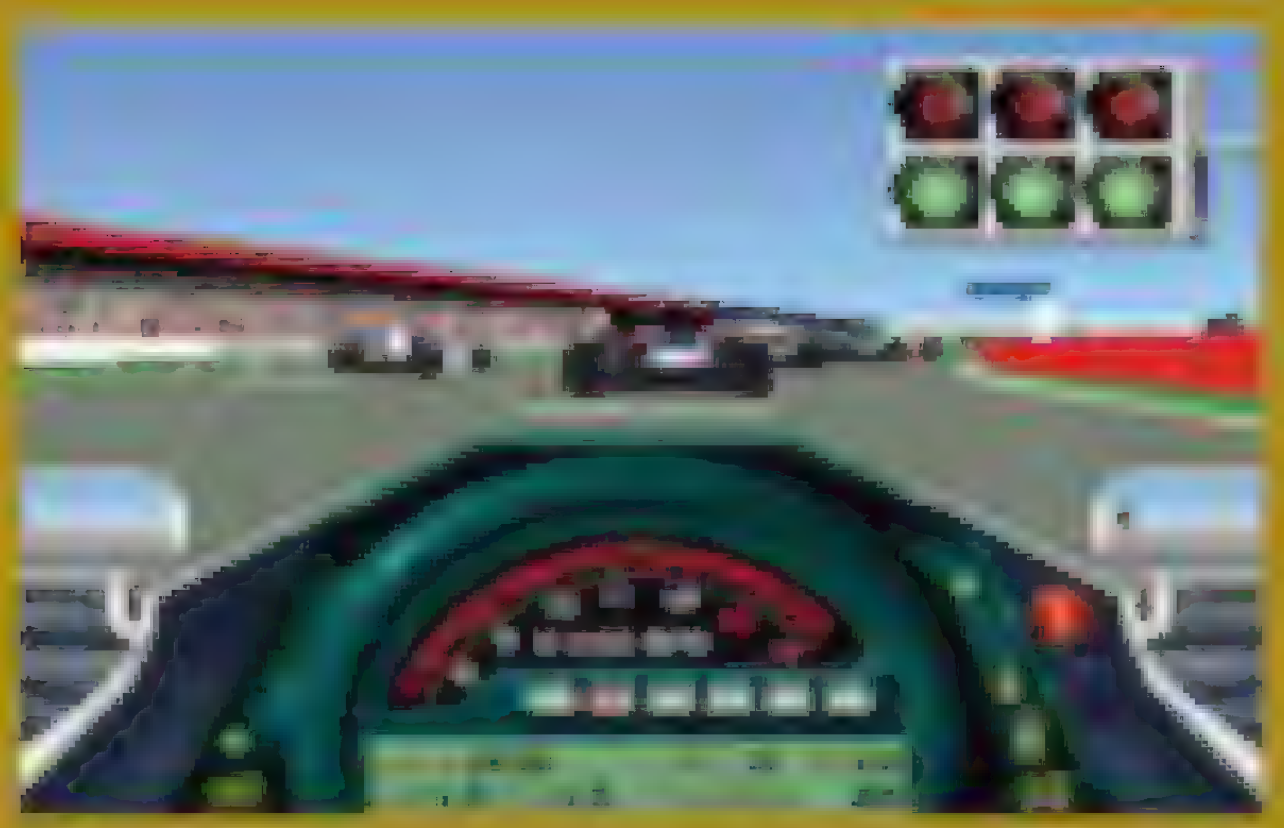
The island names were quite entertaining, with many named after people including Serrano, Odracir, Edgeley and Byrne (after TelecomSoft Director Paula Byrne). Greek myths also featured heavily, with Charibdis, Endymion and Medusa amongst others. Just for laughs there was also Milestone (as in something you might sail past!) and Elwood (named ▶



■ [Mac] Only the last two versions of *Carrier* included this view from all launched mantas

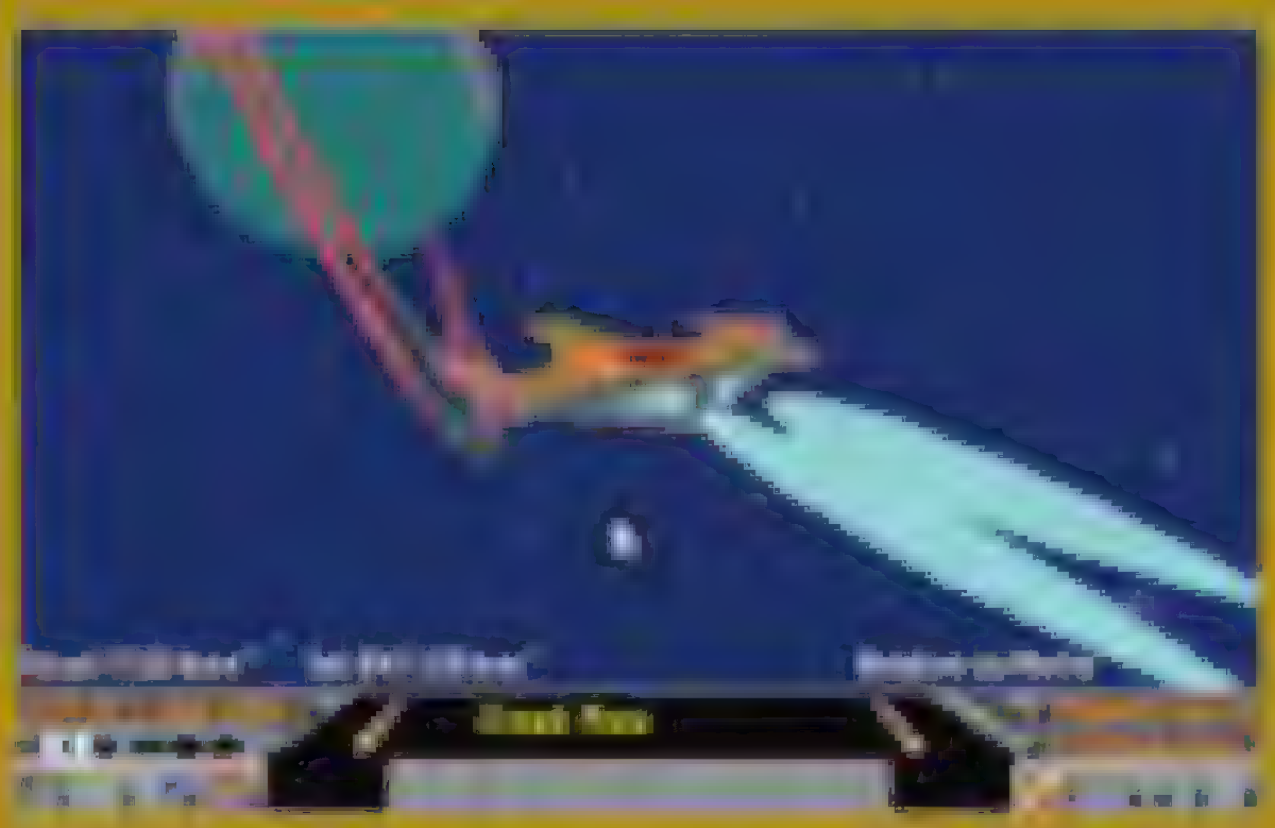
Rainbird could have got awkward but it didn't, far from it

IAN OLIVER



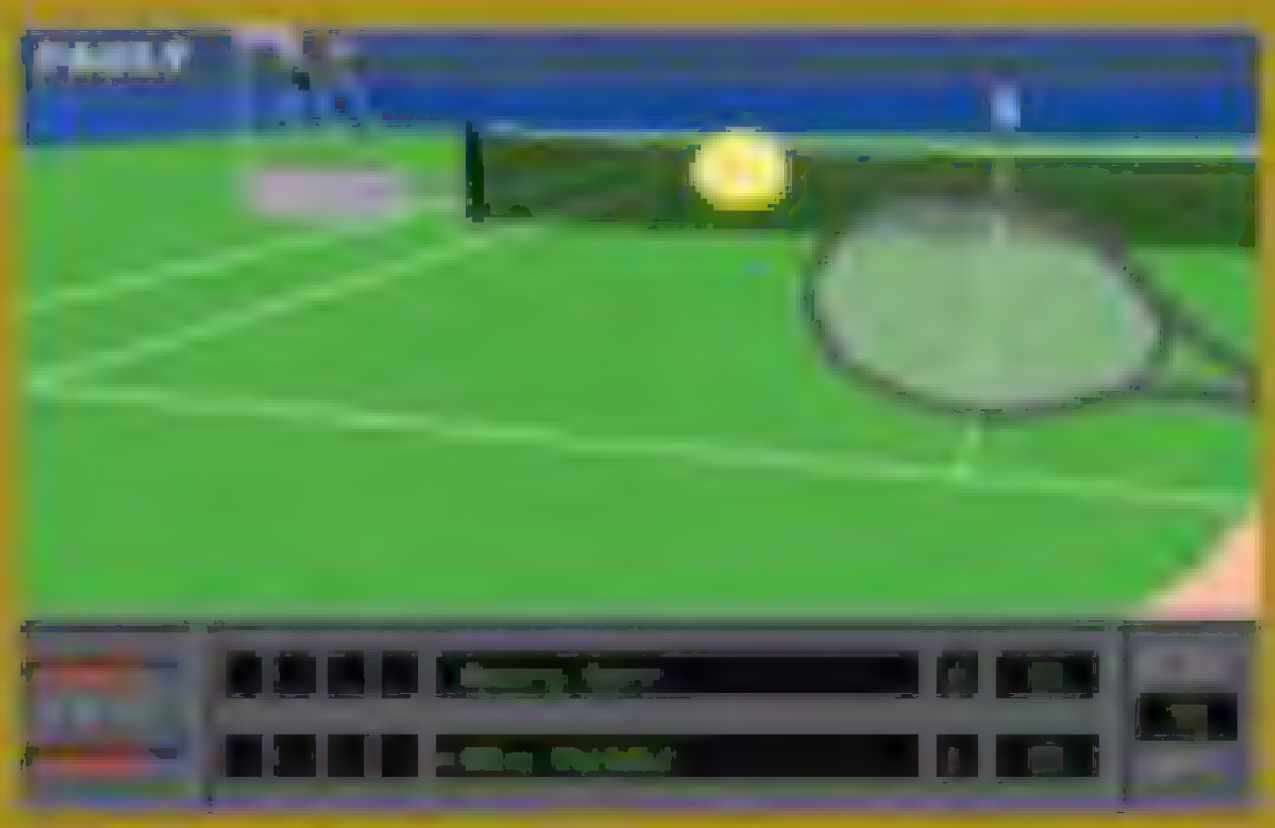
F1 GRAND PRIX I/II/III (1992)

■ Geoff Crammond's first love is Formula racing. Having tried to simulate F3 cars on the C64 with *Revs*, Geoff created his own car sport with *Stunt Car Racer*. Both games were just an aperitif to the main meal, *Formula One Grand Prix*. While the 3D improved with each version, the first F1 game made the most impression.



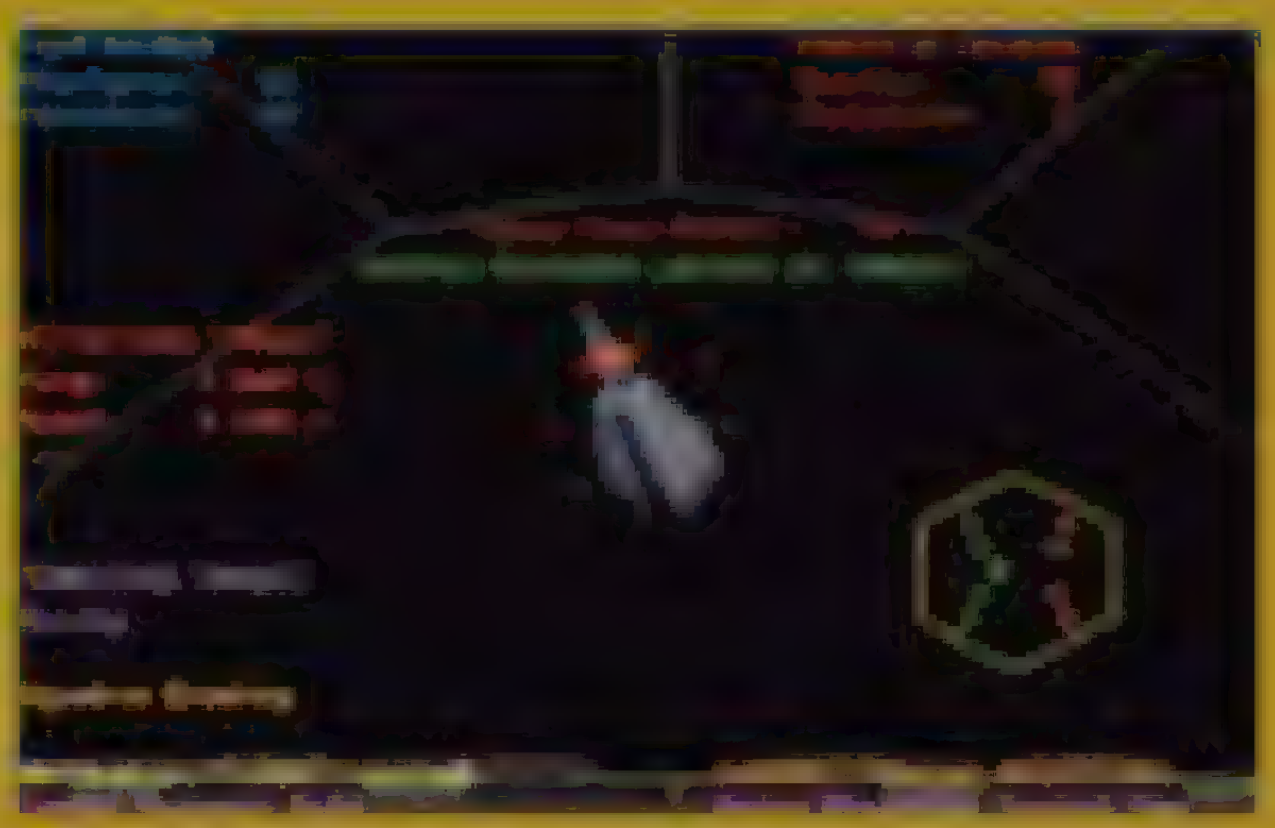
FRONTIER: ELITE II (1993)

■ *Frontier* creates a galaxy that feels like it's teeming with other NPC pilots all trying to make a living way out in deep space. The 3D system was unique in appearance, but possibly over-ambitious for the processing power found in the Amiga and the PCs of the day. It was also a tad garish in palette choice and combat was pretty tricky to master.



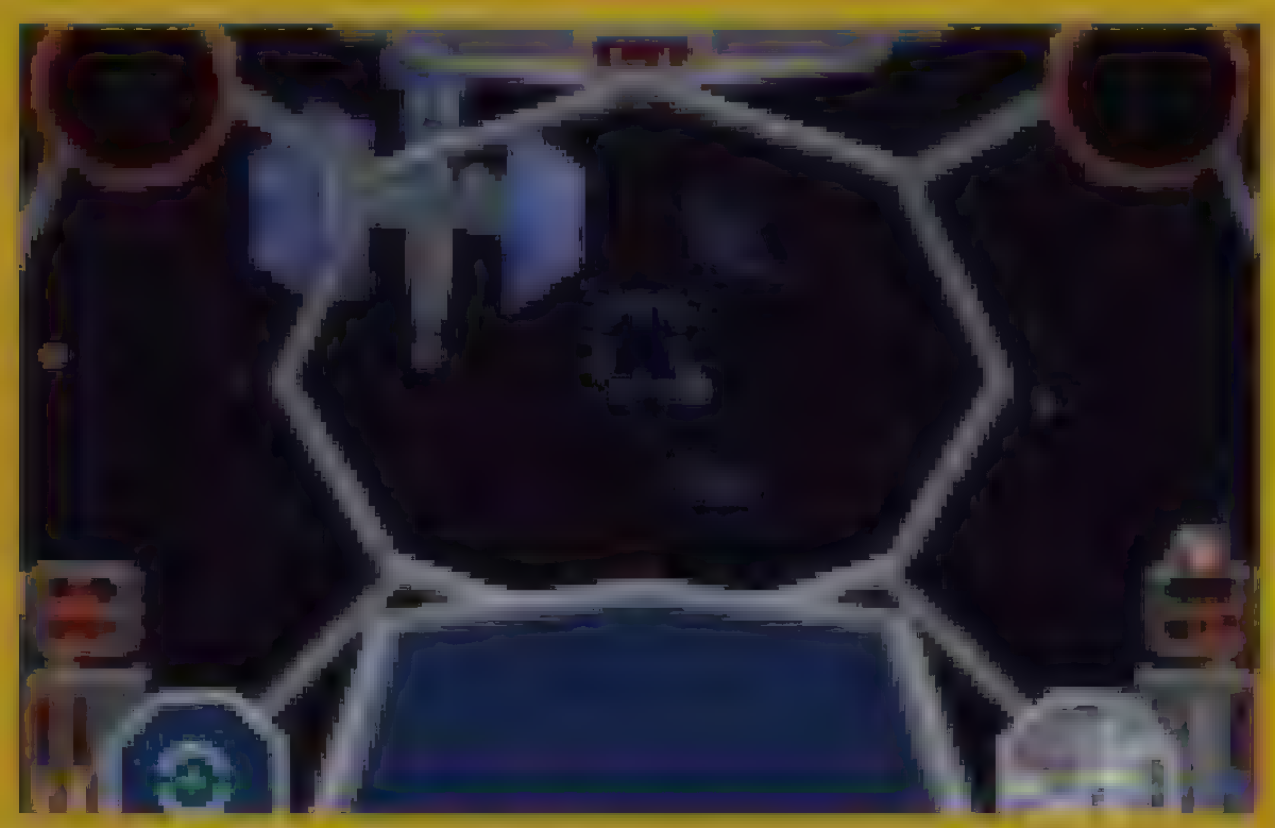
WORLD TENNIS CHAMPIONSHIPS (1993)

■ Most people don't think of sports games when they think of 3D, but this innovative tennis simulation employed a system that was played with a mouse, yet taught you techniques that helped when playing the real thing. The 3D looks basic today, but after just a few minutes play, you felt like you were on a real tennis court.



STARLORD (1993)

■ The majority of the game might not have been played in 3D, but when you jumped in and took control of a starfighter in mid-skirmish, the 3D battles in the PC version were very impressive. *Starlord* used 3D techniques refined from Maelstrom's earlier games, and borrowed camera angles and fly-by views from MicroProse's flight simulators.



STAR WARS: TIE FIGHTER (1994)

■ *X-Wing* was terrific but was also extremely hard. *TIE Fighter* made a little easier and the 3D engine was refined and included lightsource shading. The subsequent CD-ROM release went one better, adding a high-res mode for an even sharper experience. Throw in an iMuse soundtrack and it couldn't fail.

after Dan Akroyd's character in *The Blues Brothers*). Of course, Gary was a big fan of *The Blues Brothers*, and managed to get a famous line from that film into the hidden cheat mode, where you had to type 'We're on a mission from god'.

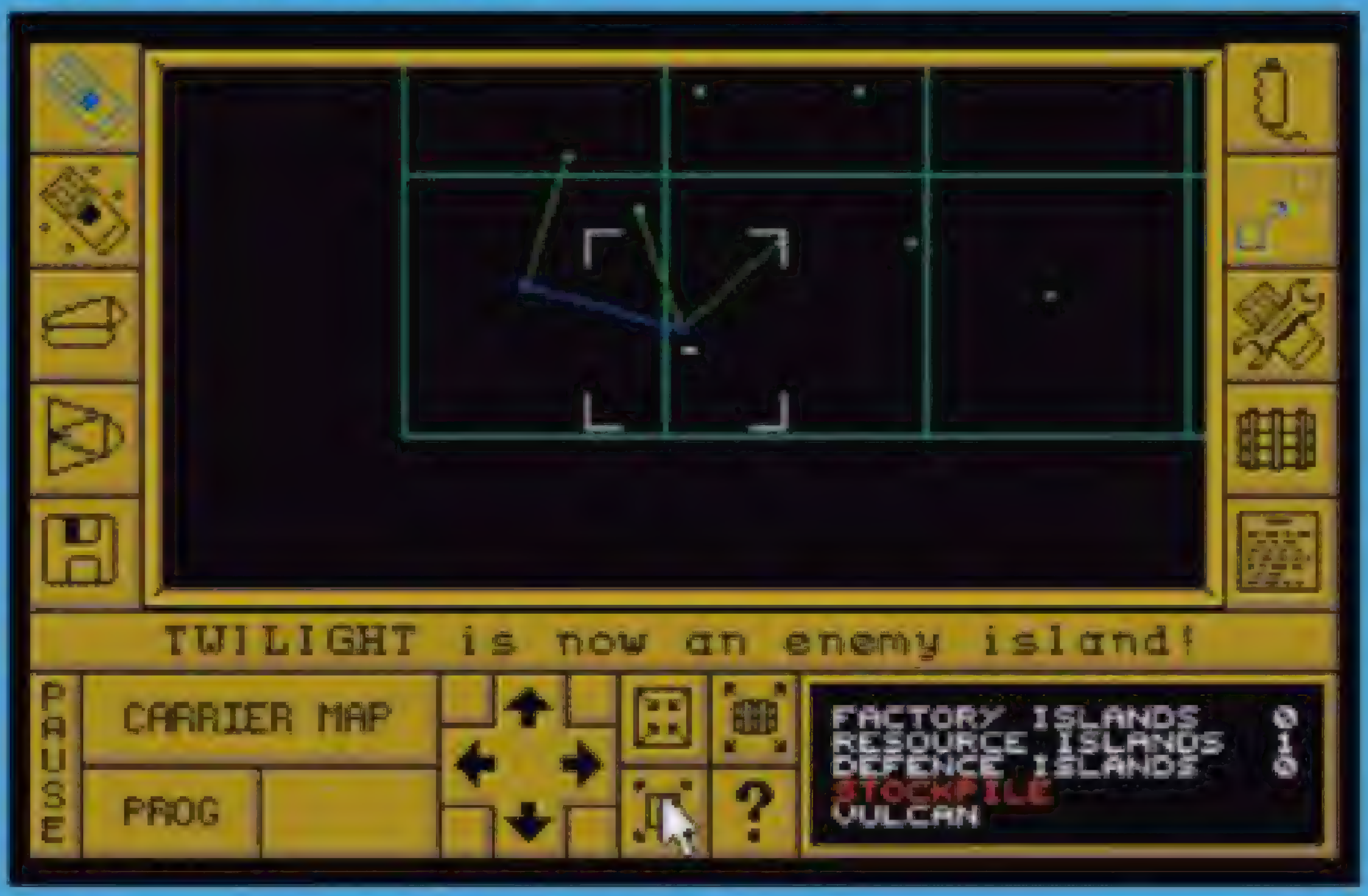
With Andy Onions busy on side projects for Realtime Games, Graeme and Ian did the bulk of the work on the game they were simple calling *Aircraft Carrier*, or *ACC* for short. "Graeme worked on the 3D system whilst I cracked on with the graphics primitives and input drivers," recalls Ian happily. They quickly had things flying around on the screen, but it was a long way short of being a playable game. "We had no real clue about the control system, so I sat down one day, wrote a routine called 'choccyboxes' that drew the rather distinctive buttons in *Carrier*, and started playing around with it. By the end of the day, I had *Carrier*'s control system designed!" adds Ian, proudly.

Initially there were a few icons down the sides plus a message area at the bottom, with no polished artwork in sight. Later on, artist Herman Serrano replaced some of the temporary icon graphics with his own, as well as providing the box artwork and the loading screen on the ST and Amiga versions. However, after this initial surge of good progress, problems soon began to surface. It became clear that Realtime had massively under-estimated the amount of work involved and over-estimated the capabilities of the ST and Amiga. PDS had been updated to support the 68000 instruction set, but nothing much else had changed. This caused serious technical problems that Ian and Graeme had to struggle through. "We were just two guys, working on what became about 50,000 lines of pure 68000 assembler, battling chewy issues of design, 3D, AI, and performance, and having to use tools that really weren't up to the job," remembers Ian, shaking his head at the memory. Unfortunately, it was about to get worse, as about the same time as all these issues were coming to a head, Realtime Games ran out of money.

"Rainbird could have got awkward but it didn't, far from it," says Ian. "It made some milestone payments despite us not really having come up with the goods, which really helped." It wasn't in the publisher's interest to pull the plug at such a late stage, but Rainbird rightly became quite concerned that the game might not get finished at all, let alone on time and on budget. "Rainbird regularly sent people up to Leeds to chivvy us along by reminding us just how late we were, and the dire consequences of this, which didn't help quite so much. I think what made it hard was that *Carrier Command* was clearly going to be something rather special if we ever actually got to finish it!" adds Ian.

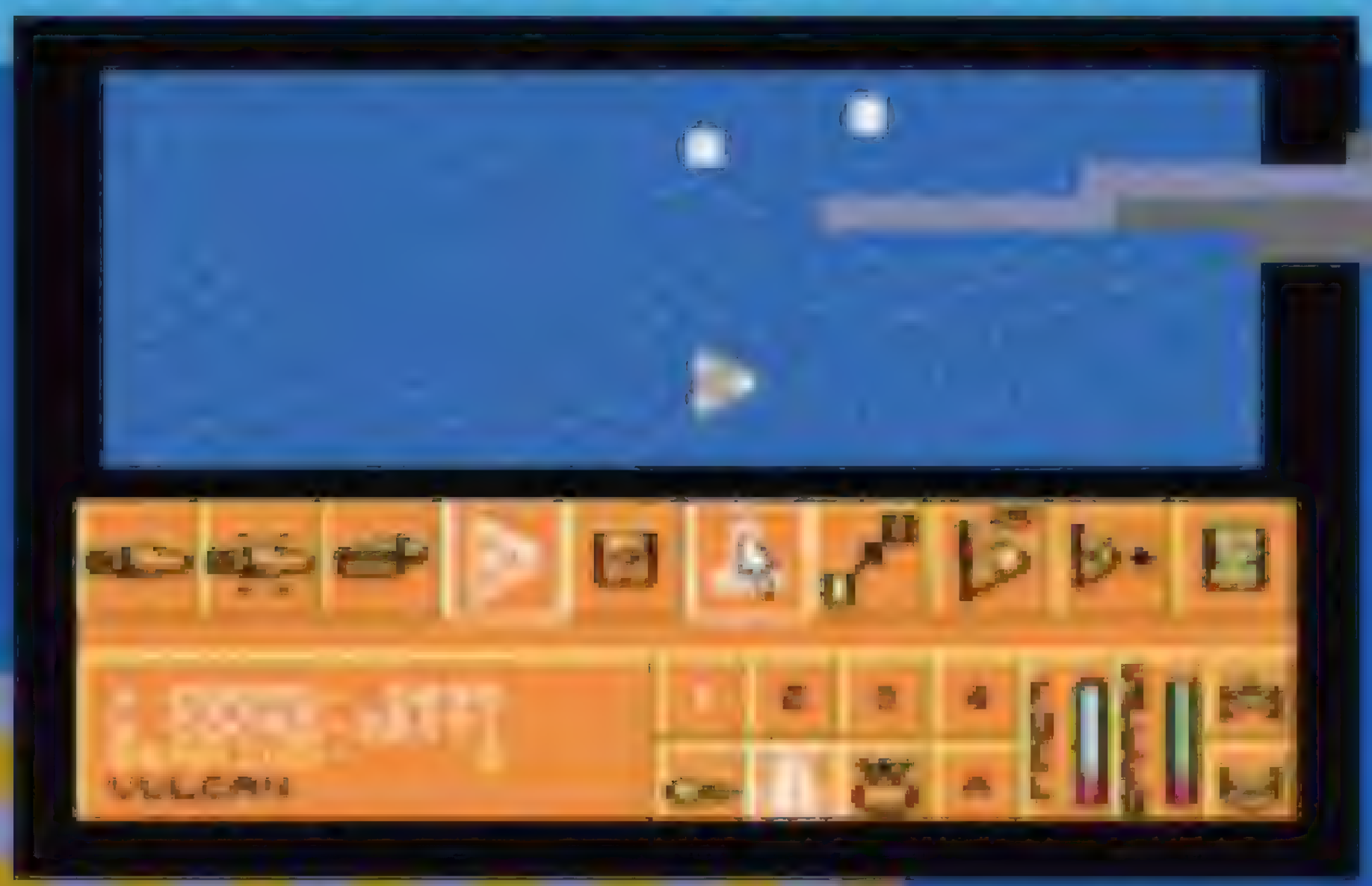
As the finishing line began to loom over the horizon, an agreed and commercially acceptable title for the project had to be finalised. "The game was called *Archipelago* for the longest time, but the

» [Atari ST] The map showed the resource network and kept you informed when islands were taken.


TWILIGHT is now an enemy island!

FACTORY ISLANDS 0
RESOURCE ISLANDS 1
DEFENCE ISLANDS 0
STOCKPILE
VULCAN

> I remember asking them to change the colours of the game since almost everything in it was black or very dark
>
> GARY SHEINWALD


» [C64] The C64 version's top-down 2D approach wasn't good.

HIGH 05000
LEFT

DEVELOPER HIGHLIGHTS

3D TANK DUEL (PICTURED)
SYSTEM: SPECTRUM
YEAR: 1984

3D STARSTRIKE
SYSTEM: SPECTRUM, AMSTRAD
YEAR: 1984

BATTLE COMMAND
SYSTEM: SPECTRUM, AMSTRAD, AMIGA, ATARI ST, PC, C64
YEAR: 1990

OCEANIC BATTLES

■ Having finished one game based upon battles in the ocean, Realtime Games unofficial follow-up resulted in coding battles for Ocean! The Manchester-based publisher signed up *Battle Command* after new Rainbird owner MicroProse (UK) turned it down. "Graeme and myself did a lot of the design work, and we deliberately made it mission-based," reveals Ian. "In retrospect, this was a mistake, but we didn't want to simply do *Carrier 2* with tanks!" he adds.

Realtime started employing other people. "We had some of the new guys working on environments, gameplay, and other bits and pieces in parallel (with us)," explains Ian. "It was a bad experience overall because we weren't sufficiently hands-on. *Carrier Command* had nearly wrecked us, so we wanted something we knew we could achieve. However, I don't think we aimed high enough."

marketing and management folks felt that people wouldn't be able to pronounce the name, or know what it meant, so I lost that battle," admits Gary Sheinwald. "We wrote all the possible names up on a whiteboard and we had a vote. *Carrier Command* won, just beating out the similar *Carrier Commander*." Ian also remembers the discussions. "Rainbird came up with a few. We told them we hated the more zany names, and *Carrier Command* emerged as a consensus. It's down-to-earth descriptions of what you actually do in a game that always appealed to simple engineers like me."

Near the end, Gary decamped up north to ensure that *Carrier Command* set sail on time. "I spent the last week holed up in a hotel in Leeds, tuning the gameplay as we rushed to get it out in time," remembers Gary. Thankfully, they did manage it although not without a bit of last minute fudging to the enemy carrier's AI code. "Hence the ACC Omega warping around and cheating a bit too much, simply because we ran out of time!" explains Gary with a hint of regret. Ian also remembers the problems they faced with the game's arch nemesis. "In the initial ST release, the enemy carrier had a habit of driving onto the islands, which was a bit embarrassing!"

Thankfully, Ian got a chance to improve the ACC Omega's AI routines in the later Mac and PC versions – writing an additional 5000 lines of code – but by then Rainbird had been sold by BT to MicroProse (UK) and its treatment of *Carrier Command* didn't impress the guys at Realtime at all. "MicroProse inherited most of Rainbird's existing games, and then did a truly shoddy job of publishing them, which was deeply disappointing and a major blow. The royalties from other versions only just cleared the advances and we were relying on future royalties to dig us out of our financial hole."

A Commodore 64 conversion was added to the original agreement to replace the cancelled PCW version, and this was farmed out to C64 experts Source, who implemented a 2D sprite-based top-down view, which – in hindsight – was less than successful, leading to a disappointing game. The last version of *Carrier Command* developed by Realtime was for the Apple Macintosh. It was an all monochrome affair, and they ended up writing it twice.

"That version was scrapped once we learnt more about how the Mac OS actually worked!" reveals Ian. The second Mac version ran as an officially legal Mac OS program, running in a window, using desktop gadgets, multifinder and all the usual Mac menus and options. They even got the game running on the Mac 2 once they removed a small amount of self-modifying code. That version wasn't strictly 100% legal as far as Apple was concerned, as it fudged a few things to get over some last-minute technical hitches.

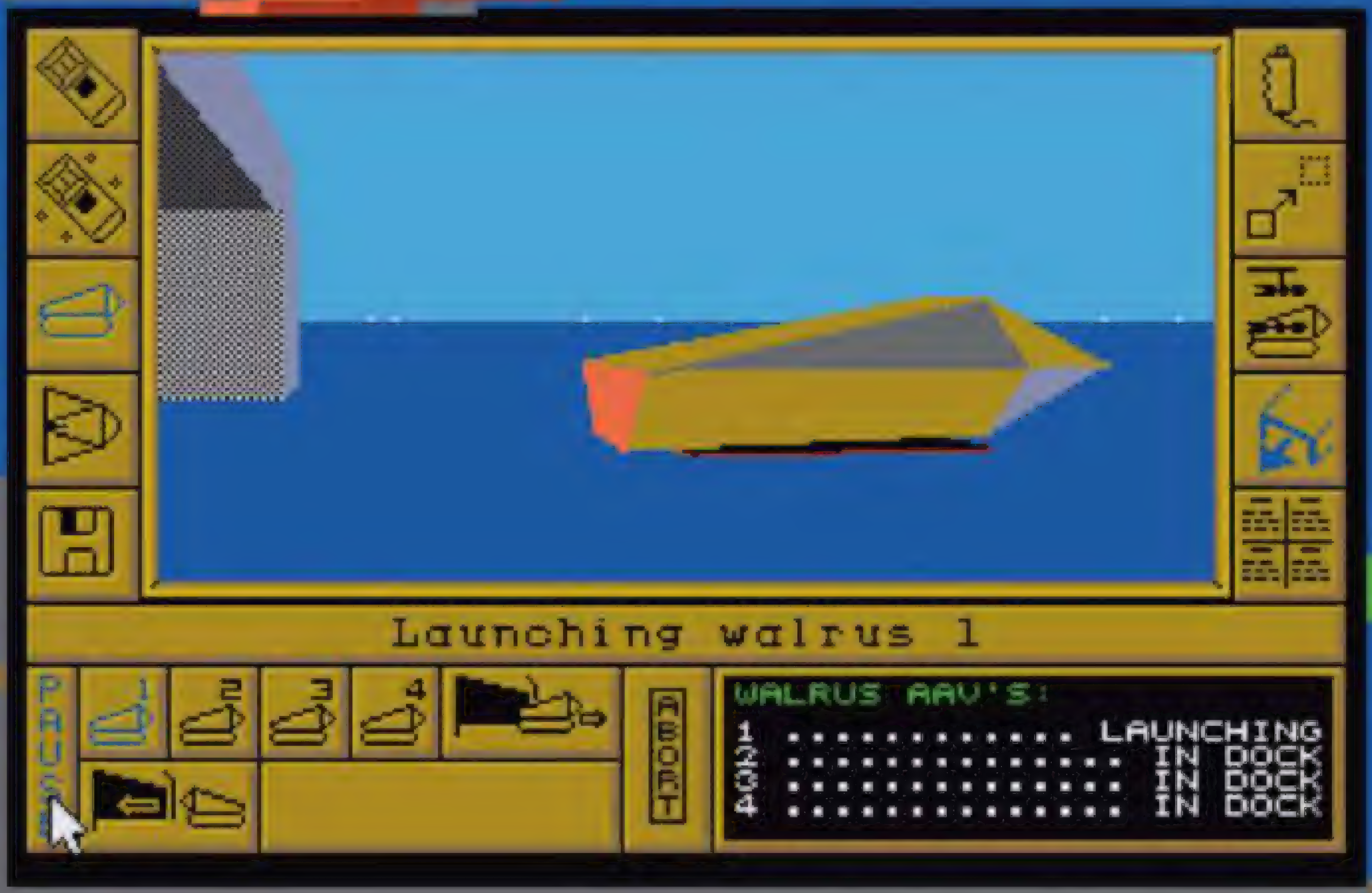
■ [Mac] MicroProse only released *Carrier Command* for the Mac in the US.

CARRIER
COMMAND

The Mac version was written on a PC using SNASM, which was a suite of development tools designed specifically by Ian to replace Realtime's reliance on PDS. Its development was sub-contracted and an entirely new company called Cross Products Ltd was set up to support it. SNASM went on to be used by a number of other developers and publishers over the next three or four years.

Ian Oliver has bittersweet memories of *Carrier Command*, as it represents both the peak and the beginning of the end for Realtime Games. "The ST version got some cracking reviews, and we were all very proud of it, but it wasn't without its flaws," admits Ian. "The brave new world of the games industry in the Nineties demanded a high level of glitz, as only the hype-fuelled hits made any money, and we just weren't financially sound enough to grow our team to a size where we could compete. While we did some solid work, including both ports and original product, we produced nothing that even came close to *Carrier Command*."

The game itself has lived long in the memories of those who wrote it, published it, bought and played it. So much so that a new generation of players are still experiencing it, with the recent publication of *Carrier Command: Gaea Mission* for the PC, and continues to enthral gamers worldwide. ■

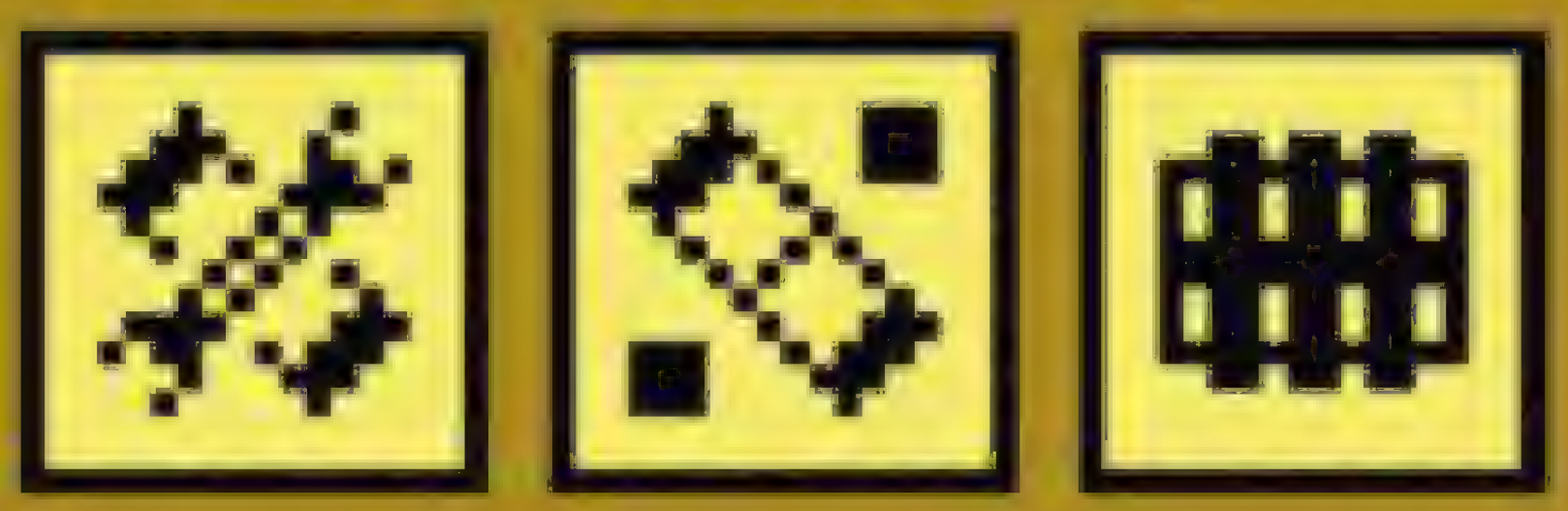


```
Launching walrus 1

WALRUS AAV'S:
1 ............ LAUNCHING
2 ............ IN DOCK
3 ............ IN DOCK
4 ............ IN DOCK
```

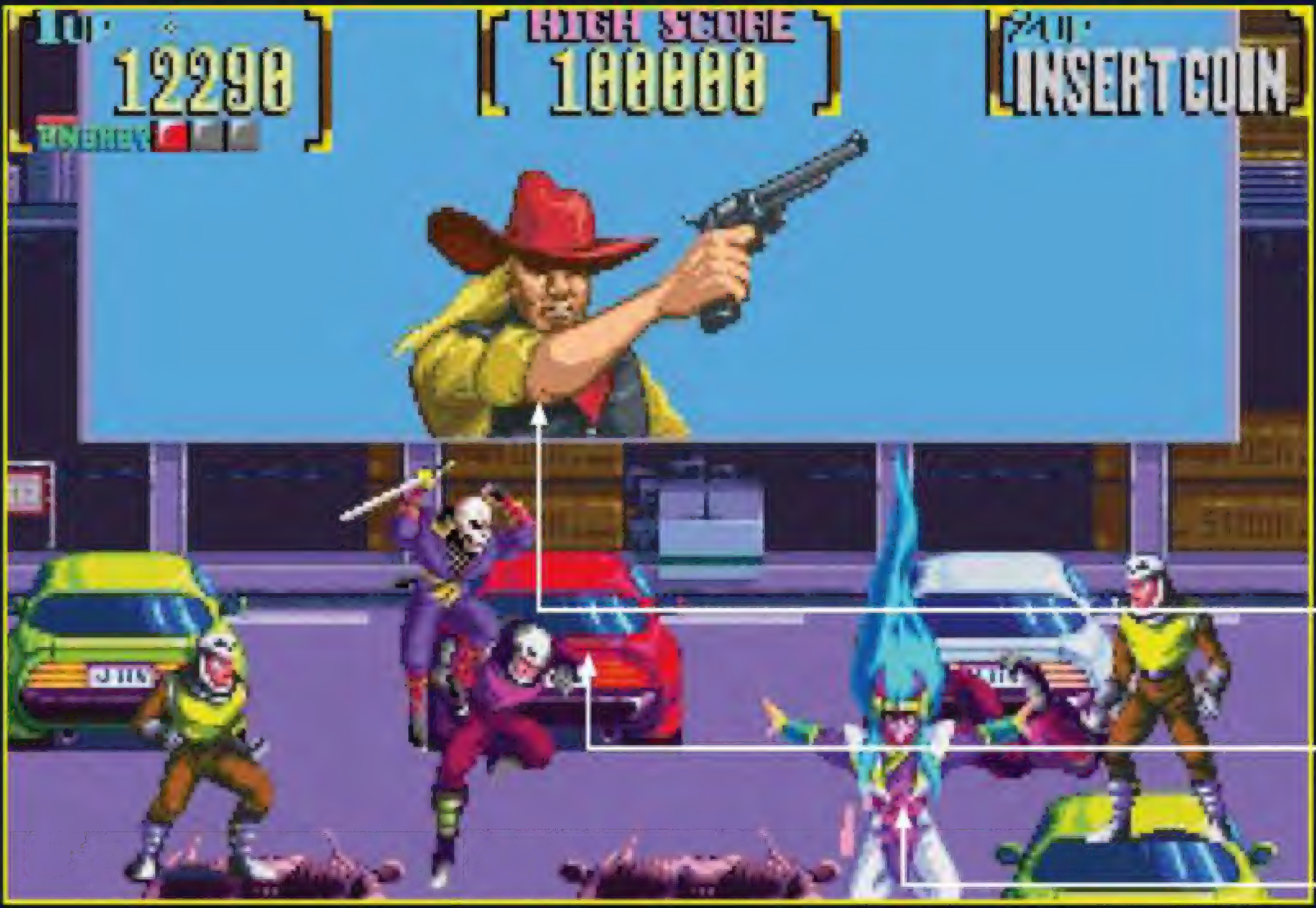
ICON DO THAT!

■ As the primary tester for Rainbird on the impressive 128k Spectrum version coded by Andy Onions, the author of this article wasn't happy with some of the icons being used in the development versions of the game. So, after being encouraged by project manager Gary Sheinwald, I created some alternatives. I did half a dozen in total, submitted to Realtime on a 3" Spectrum +3 disk that was sent up to Leeds by first class post. Well over twenty years later it's taken some detective work to try and recall which ones are mine! I definitely did the damage control, stores and defence drone icons in the Spectrum and Amstrad CPC versions, and a few more look likely candidates but I can't be too sure after all these years!



THE UNCONVERTED

Arcade games that never made it home



IN DEPTH

» *Mystic Warriors* runs from the same rooting-tooting hardware as *Sunset Riders*. The game even gets a plug in the first stage.

» The action is superb. Seconds later a truck smashed through these cars and smashed into a petrol station. Its dangerous driver is the first boss in the game.

» There are five different ninja warriors in the game. They don't differ that much, but this ninja here definitely has the hardest hair style.

MYSTIC WARRIORS

■ **Developer:** Konami ■ **Year:** 1993 ■ **Genre:** Run-and-gun

■ **For a neat slice of arcade run-and-gun action this month, look no further than *Mystic Warriors*. Essentially *Sunset Riders* dressed in shozoku (that's ninja clothing), it sees a team of five young ninja heroes take on a larger gang of evil goofball ninjas who are out to take over the world. Okay, so the story is about as original as black shoes, but *Mystic Warriors* charm lies in its presentation, quick-paced action and the variety found in its levels. It doesn't rewrite the run-and-gun rulebook; it merely underlines some of the best parts.**

The first thing that hits you about *Mystic Warriors* is the music. Kicking things off with a piece that sounds uncannily like the opening theme to *The Terminator*, you're given some mission exposition presented in typical arcade fashion: a staccato-reading 30-word plot that leaves players with the job of filling in the blanks, accompanied by images that introduce the protagonists and their enemies – who are, respectively, a band of ninjas who clearly dress in the dark, and the somewhat professional-sounding Skull Enterprise.

Mystic Warriors plays like a mixture of *Shinobi* and *Sunset Riders*, with the action primarily side-scrolling but enemies and bosses occasionally attacking from the top and bottom of the screen. There is very little difference between the five ninja characters in the game, save for their animations and weapons. All have the same attacks, pick-ups and power-ups. Their primary weapon is throwing stars, which can be upgraded to rapid and scatter fire but they also have a melee weapon they use automatically against enemies that get too close.

In terms of power-ups and pick-ups, things are kept quite simple. As well as being able to upgrade their weapons, the ninjas can come across smart bomb-style spells which activate the instant they pick them up (not so great if there are no enemies on-screen at the time), and a bubble that gives them temporary invincibility and you get a pretty good idea of what a Zorbing glam rock ninja would look like – it's a complete disappointment.

The imaginative enemies and level designs do impress though, and this is thanks to Konami packing some creative and satisfying set-pieces into the stages. *Mystic Warriors* is another polished run-and-gun game from one of the masters of the genre, and is our pick of the pile this month.

INSERT COIN
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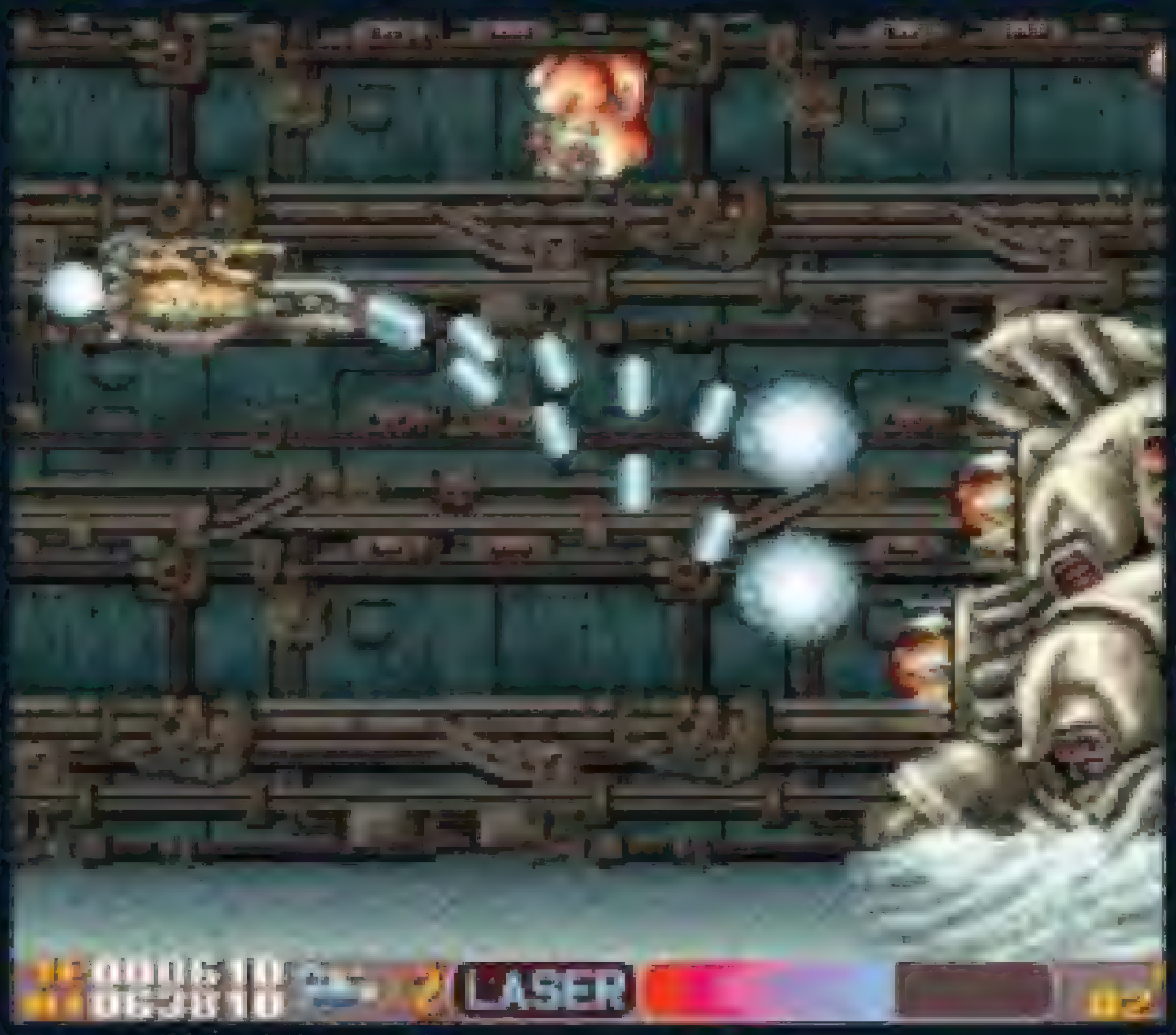
CONVERTED ALTERNATIVE

SUNSET RIDERS 1991

Running from the same arcade hardware as *Mystic Warriors*, the games obviously play very similarly – just replace the gunslingers with shurikenslingers. *Sunset Riders* was ported both to the SNES and Mega Drive, so there's plenty to play it on.

COSMIC COP

Developer: Irem **Year:** 1991 **Genre:** Shooter



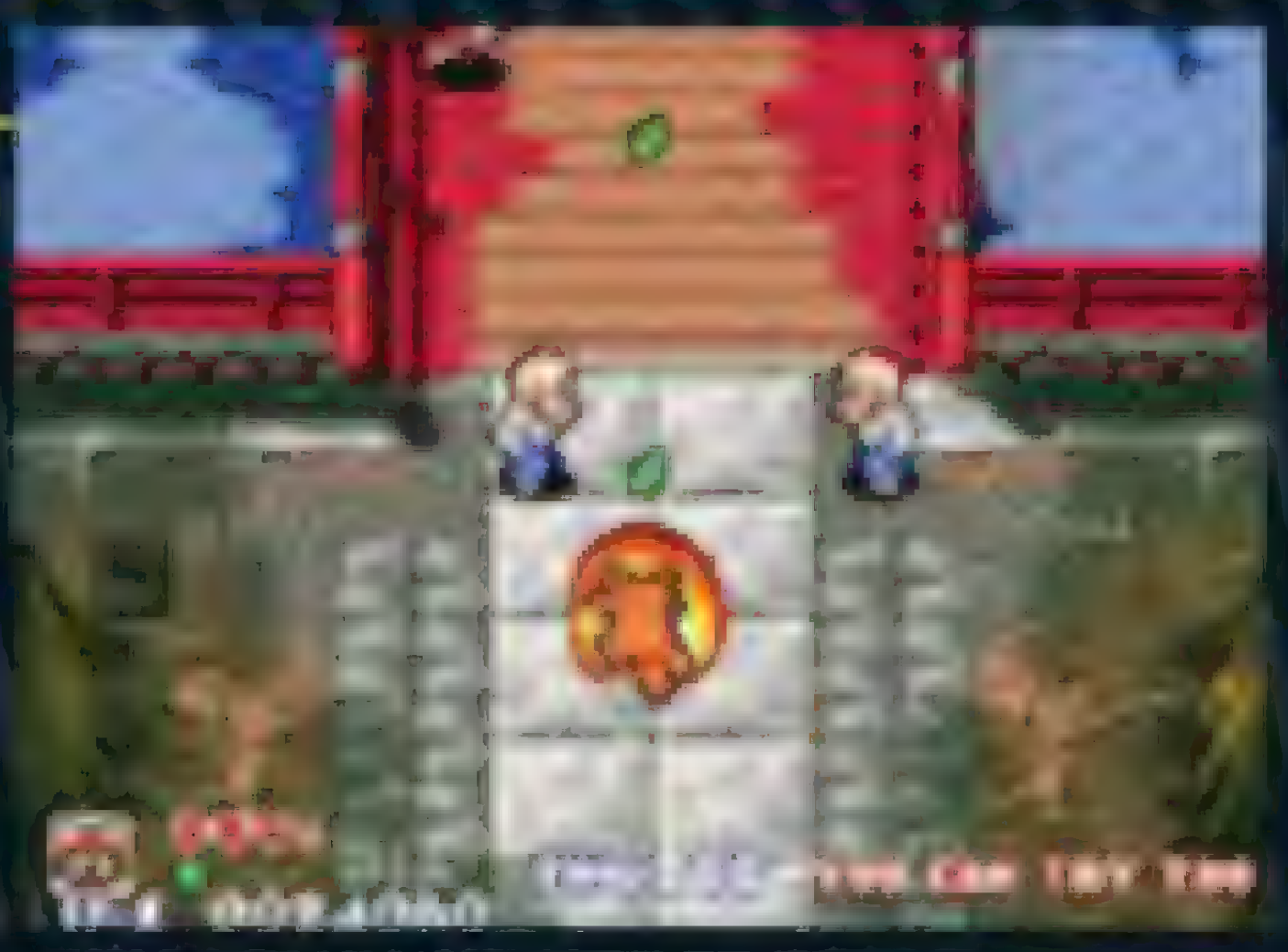
» [Arcade] Recognise the game, but not the name? Well *Cosmic Cop* was also known as *Armed Police Unit Gallop*. Stupid right?

This *R-Type* sequel stroke spin-off sees the Bydo war machine move from a claustrophobic H.R. Giger-style cosmos to a claustrophobic glum-looking post-apocalyptic city. You play a specialist police unit tasked with taking down a motorcade of Bydo creations. Piloting the R-11B Peace Keeper instead of the famous R-9A Arrowhead, the new ship is still capable of unleashing an impressive amount of firepower.

Its standard shot can be levelled up several notches, and is complemented by a secondary laser weapon that fires a concentrated stream of energy that whips around the screen and automatically locks onto enemies. There's also a third armament that can be picked up that fires ground-hugging missiles. Some levels also have obstacles that require quick firing to avoid, from deactivating sludge pumps to blasting a path through buildings, while *Cosmic Cop*'s scrolling is also unique in that it allows the player to manipulate its speed. Basically the further right of the screen the faster the player's ship goes. This becomes an essential part of play as most of the levels feature tight pathways and branching sections.

CONVERTED ALTERNATIVE

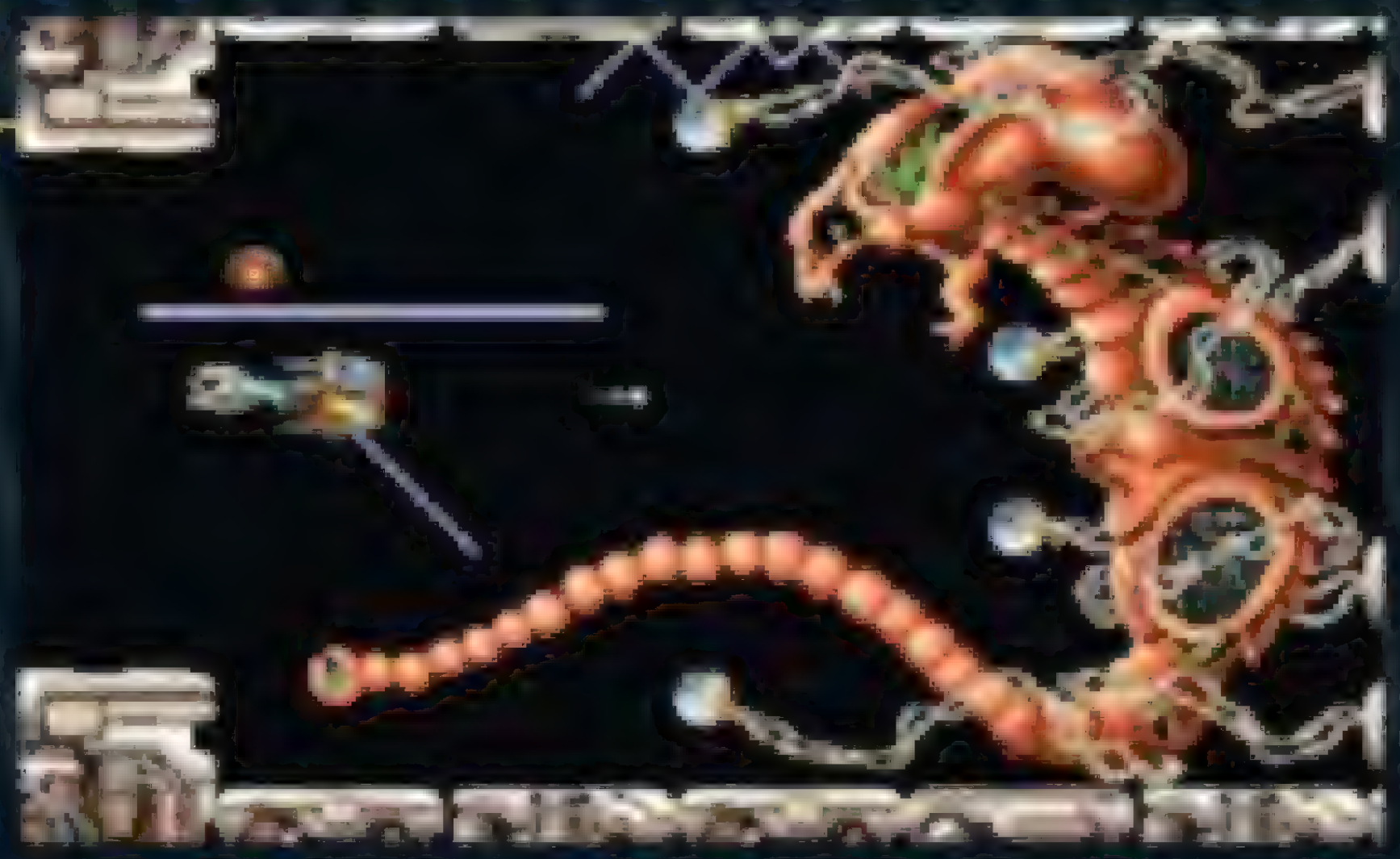
POCKY & ROCKY 1992



Pocky & Rocky is a colourful and cartoonish shooter that leaves the spaceships behind. Released exclusively for the Super Nintendo, it's packed with imagination and variety, and still looks good today.

CONVERTED ALTERNATIVE

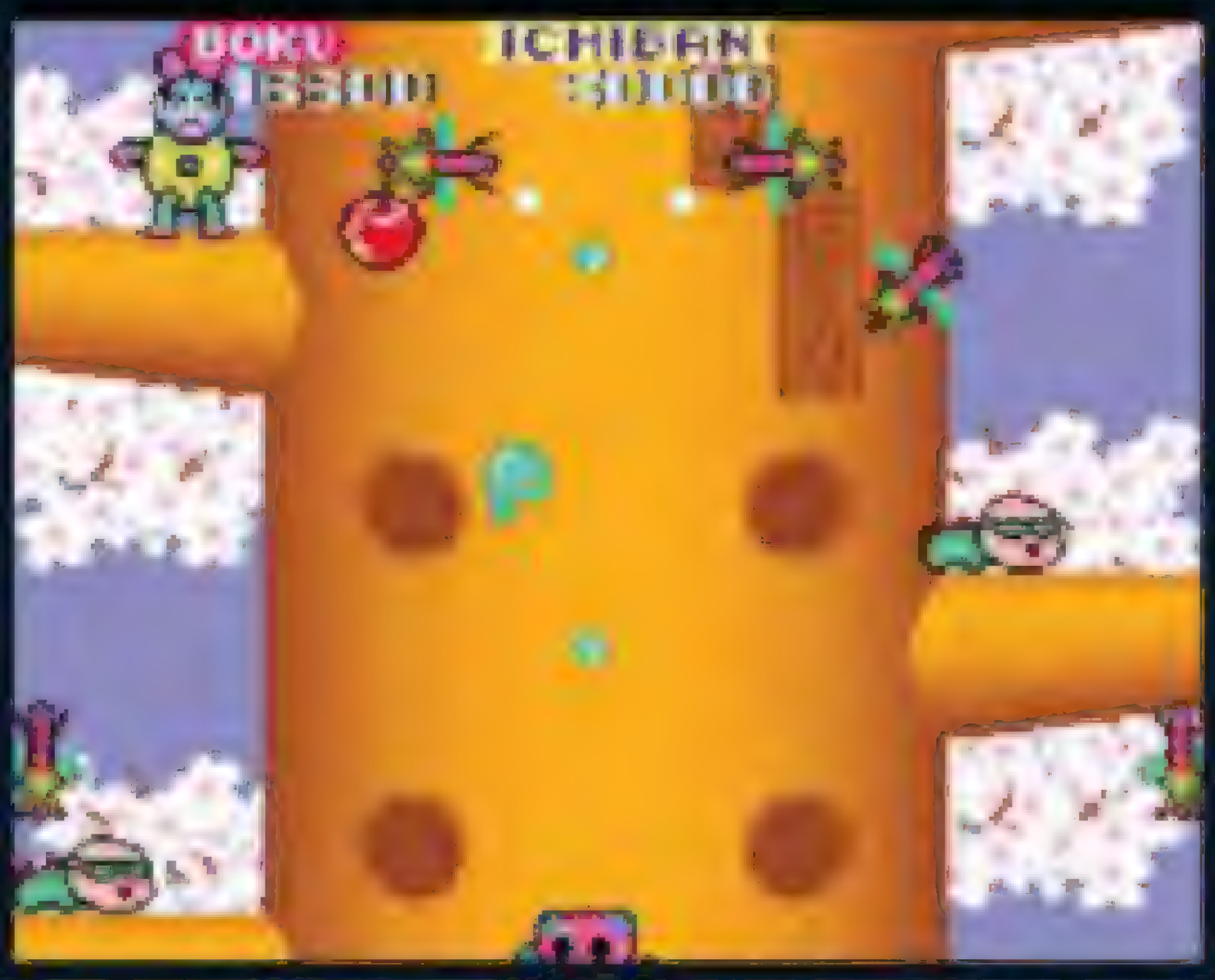
R-TYPE 1987



Return to where it began with this timeless shooter that has lost none of its brilliance. Take your pick of home ports; we suggest taking the excellent Spectrum and PC-Engine ports for a spin.

ZIPPY BUG

Developer: Coreland **Year:** 1986 **Genre:** Shooter



» [Arcade] If you like to stare at trees all day long then you're going to seriously love *Zippy Bug*.

This colourful shooter sees a little dude scaling a tall tree to rescue his girl from a guy who looks a bit like *Tekken*'s Yoshimitsu. Climbing bark is the easy bit, especially as our hero is wearing some headgear that gives him the power of temporary flight, quickened reflexes and firing speed. The difficult part arises from the tree dwellers that appear in their droves to stop the rescue mission.

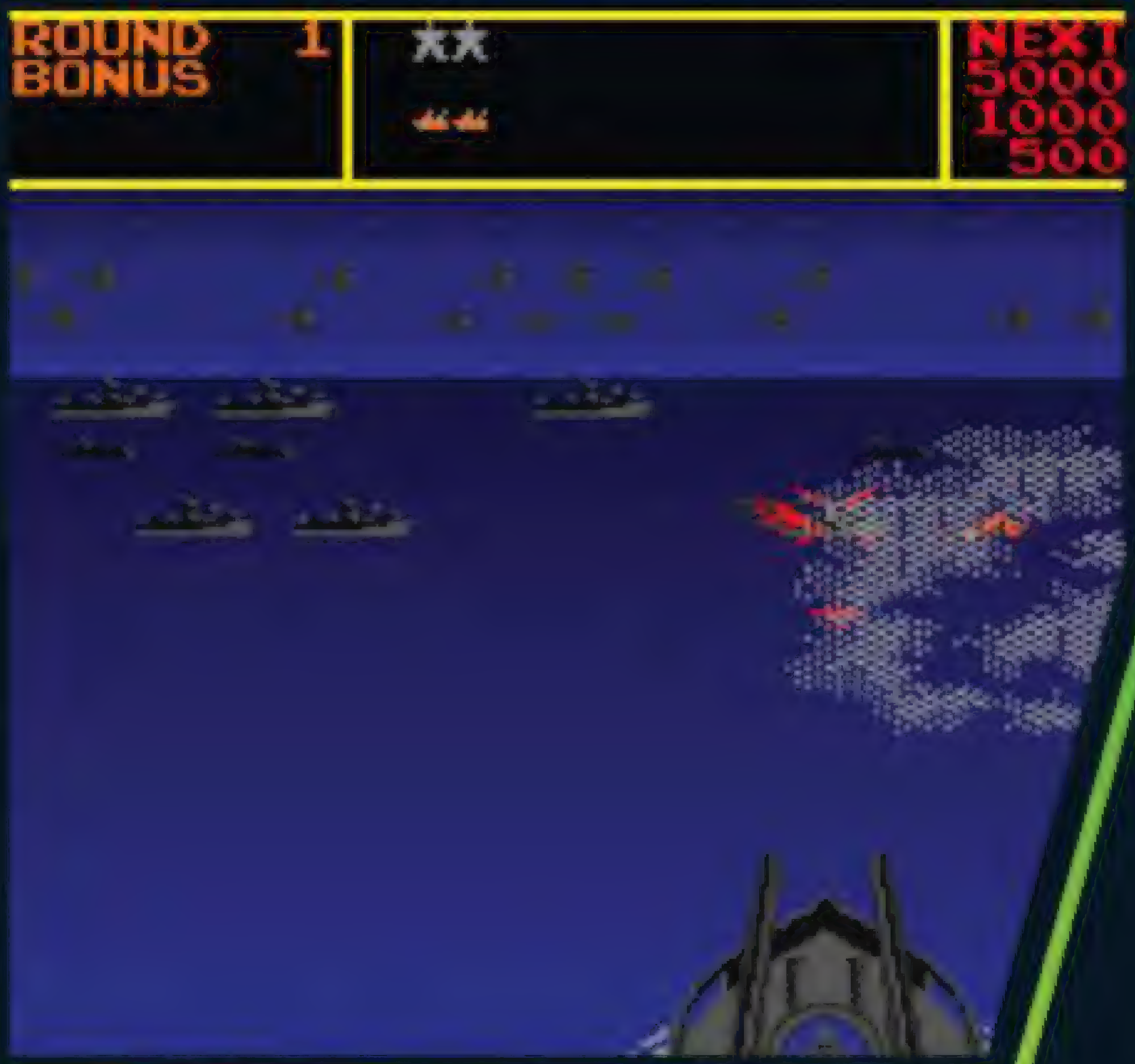
The enemies range from spiders and bugs, to things that look like human donuts, and you have to dodge their attacks while collecting the fruit and avoiding the deadly skulls they drop following their demise. And death comes quick and often as a result of enemy numbers and their testing attacks.

There were aspects of *Zippy Bug* we liked, but overall we found it too frustrating and repetitive to hold our attention. You can't exchange or power-up your weapon (though there is a mallet power-up you can find that kills everything on screen), there's little variation in the enemies you fight, and as everything takes place on a tall wide tree, the games get monotonous after a short while. It's not terrible, just terribly average.

BEST LEFT IN THE ARCADE

YAMOTO

Developer: Sega **Year:** 1983 **Genre:** Shooter



This early Sega shooter puts you in control of Yamoto. No, not brave husky Yamato from *Shadow Dancer* but the famous Japanese battleship which sank during 'Operation Ten-Go': a suicide attack against US Forces in the pacific theatre.

Okay, who we trying to kid here, we looked all this stuff up, but it still makes for interesting subject matter to base a videogame on, or so you'd think. Now whether that particular final mission is the one represented in this game is unclear, but what we can tell you is the ship is heavily outgunned.

With only the front of the ship visible, you have to move the strafing warship from left to right, shooting down enemy forces made up of battleships and aircraft using a double-ended crosshair. One fire button launches torpedoes to sink battleships while another springs the ship's guns into life and is better used for tacking down enemy missiles and aircraft.

And that's pretty much *Yamoto*. We unfortunately just found it a bit dull. Or maybe we're just letting our unreasonably strong pining for a *Shinobi* dog spin-off cloud our opinion of it.

GAMING LEGENDS

SID MEIER

From engaging combat sims and entertaining trains to creating Civilization, Sid Meier is legendary among PC gamers. In a rare interview, for a special edition of Gaming Legends, the influential game designer discusses his remarkable and enduring career in the games industry

Perhaps turned off by their strategic, military and historic looking surfaces, we suspect there are a fair number of gamers who have never played a Sid Meier game. Some of the most fun and intellectual simulator games ever written, the likes of *Civilization, Pirates!* and *Railroad Tycoon* aren't games you play to finish, or experience that extravagant set-piece moment everyone's discussing by the water cooler, but games you enjoy learning from, returning to and having whir away nicely in the background. They offer deep, factual worlds to tinker with, and highlight the most unique and important ingredient videogames have over those in film and literature: you.

This personal connection actually plays a big part in Meier's approach to game design, as all his games are based on a topic or theme that interests him. All his games have started their development the same way: find the fun and build on it. As the famous story goes, one of Meier's earliest games was inspired by a flight simulator arcade game he found he could master by being able to exploit its enemy AI. This led to a challenge being put to Meier by his then work colleague Bill Stealey to write a better one, and ended with both quitting their jobs to set up MicroProse in the early Eighties and focus on writing and selling games.

MicroProse started out as a two-man operation, with Meier writing the games and Stealey out on the road, visiting retailers along the East Coast to sell them too. With their sales order book filling, the men realised the business potential of videogames and set about growing their company. MicroProse soon built up a solid reputation for producing engaging, deep, but fun and entertaining combat simulators, titles including the submarine sim *Silent Service*, and the combat flight games *F-15* and *F-19*. Both MicroProse and Meier became so renowned within the genre that when Meier came to Stealey with the idea for *Pirates!*, his partner was adamant that Meier's name be on the box.

At the start of the Nineties, MicroProse began moving further away from its military simulation roots. Meier would release *Covert Action*, a James Bond-inspired action strategy game and then followed that up with *Railroad Tycoon*. A business sim at heart, *Railroad* allowed players to build and manage their very own railroad company, while learning the history of rail travel. Players not only had to set up their business from scratch, but pay close attention to the various cargoes, manage deliveries, and fend off rival companies competing for your business.

But the game that Meier is most recognised for is the one that followed next. *Civilization* expanded greatly on the ideas and gameplay *Tycoon* laid down by allowing players to construct their own empire and effectively rewrite and shape history. Inspired by several game sources, including *Empire*, *SimCity* and *Railroad Tycoon*, *Civilization* was one of the deepest and epic strategy games of its kind. From 4000BC right up to the Space Age, it allowed players to be creator and ruler of their very own civilisation, growing it from a single settlement and making decisions on everything from exploration, building and warfare. Furthermore, as time passed in the game so too did technological advances, with discoveries (such as the wheel and flight) having a big impact.

In 1993 MicroProse was purchased by Spectrum HoloByte, a California-based studio also renowned for creating simulation style games. Two years following the deal, Meier decided to leave MicroProse to focus on game design. Meier set up Firaxis Games in 1996, a studio he co-founded with ex-MicroProse game designers Jeff Briggs and Brian Reynolds. Since its inception Firaxis has become renowned for releasing high quality strategy titles, while continuing the *Pirates!* and *Civilization* brands. Now a subsidiary of 2K Games, Firaxis' last project was last year's *XCOM: Enemy Unknown*, a worthy and critically commended update of the revered strategy series created by Julian Gollop.

In 1999 Meier was the second person to be inducted into the Academy of Interactive Arts and Sciences' Hall of Fame – after Shigeru Miyamoto – and received a Lifetime Achievement Award at the Game Developers' Conference in 2008. An avid gamer himself, Meier is one of the PC industry's most recognised and influential game designers. ▶

THE INTERVIEW

So tell us about the key events that led to you writing games and forming MicroProse.

I guess I've always been interested in games. When I was a child I would play games and invent games with soldiers and blocks and all sorts of stuff. This was in the dark days, of course, before we had computers, it was when I went to college that was the first time I was exposed to computers. I was interested in learning to program but still there wasn't much in terms of games in those days. Shortly after I finished school, the Atari 800 computer appeared, which was the first personal computer I had. It was no so much for the engineer or the hacker, more for the programmer, so I started for fun making games on the Atari computer. The first one was kind of a version of *Space Invaders*, and I was just kind of combining two things that I really enjoyed: games and programming. Then I met Bill Stealey and I told him I was having fun writing games for my own amusement. He was a high energy guy, entrepreneurial, and said 'Let's start a company'. So we started MicroProse. But it was just me being, in a lot of ways, at the right place at the right time, being at the very beginning of the whole computer gaming industry, and having an interest in both games and computers and pretty much making it up as we went along.

How did your relationship with Bill Stealey work at MicroProse? Coming from a military background, would Bill have much input into the strategic and accuracy aspects of your games?

He would play them and he would give me good feedback. We worked really well together because the things we liked to do didn't really overlap. I enjoyed creating the games and programming and he enjoyed selling them and running the company. So we had a really good partnership in terms of each doing our thing and appreciating what the other was doing. He had lots of ideas about games, and especially the military games. He had lots of contacts and could get us secret air force manuals or cool information about aeroplanes. It was a very good partnership.

What were those early years at MicroProse like?

We call them the good old days. What was worrying about them was that we were making things up as we went along. We didn't have genres, we just would say 'Let's make a game about aeroplanes or submarines, or railroads', and we'd just make it, not worrying about which genre it was going to fit in and who the audience was. We just made games we enjoyed playing and hoped other people would have fun playing. Today almost every good topic has already had a game done on it, probably five or six games, but we were able to bring out the first pirates game, and one of the first games about railroads. So it was a lot of wide open territory back in those days that we got to explore and innovate.

When MicroProse began to grow, how you did find the change from creating games by yourself to working with a team of developers?

It happened relatively slowly. I actually did all the art up until *Silent Service*, and then we hired an artist and I realised he could do a much better job than I could with the art [laughs]. I also did all the sounds for quite a while. In those days it was almost a one-person operation probably for the first four or five games. And then I did appreciate what a real artist and real sound designer could do, and yes I did enjoy working with them. But for quite a while I actually tended to be the only programmer on the game and integrated their work. There was only so much we could do so I was still able to be involved with every aspect of the game. Actually, the one thing we actually started to let go was the writing. Because in those days the MicroProse manuals were 150/200 pages and we actually hired people specifically who were knowledgeable in these topics to write these cool manuals with a lot of history. So in that way the teams gradually got a bit bigger, but they never got all that large at MicroProse.

What were your reasons for leaving MicroProse, and looking back was that a difficult decision?
It was kind of to recreate the good old days, in other words a small studio just focused on making games. Being part of a larger company, there are considerations about stock value and the pressure in terms of schedules and deadlines becomes a little more intense. It wasn't a bad situation particularly, but we kind of wanted to get back to the root of game design and focus on that. So a couple of us decided it was time to go for something a little smaller and a little more focused on just making games.

Did you find it easier going through the whole start-up phase again with Firaxis?
Yes. We knew a lot more when we started Firaxis then we did when we started MicroProse. I think by that time we kind of knew what we liked to do and what we were good at and not so good at. And so we had an arrangement with Electronic Arts, they were our publisher, and kind of encouraged us to do what we did, which was make games, and we got moving pretty quickly and it was a very fun experience. We enjoyed being again responsible for ourselves, and independent, and having to deliver.

Is creating educational as well as entertaining games something you want to continue doing?
We actually don't consider our games to be educational. I think what we believe is people don't enjoy being educated but they do enjoy learning, and we kind of give players the opportunity to learn a bit about the world and a bit about themselves as well I think. With a game like *Civilization*, or almost any one of our games, you can explore your own strategy, your own ideas, your own thoughts about different ways of playing that you enjoy, and most players I think feel that they're getting better as they play, that they're learning something about the game and how things work.

» [PC] *Civilization* is inarguably the series that Meier is most recognised for. It spawned several sequels, as well as the *Colonization* spin-off games.

» [PC] *Railroad Tycoon* is one of Meier's most recognised series and has to date spawned four popular sequels.

> **"We were making things up as we went along. We didn't have genres"**

You've said in the past that you like to make games based around topics that interest you. Are there any you've yet to tackle and have you ever thought about what you would do if you run out?
There are plenty of topics left [laughs]. No, for every game we actually release there's probably one or two prototypes we've created and couldn't work out how to turn it into a game but are still lingering there. One of the classics we've talked about is a dinosaur game, which we've never actually done but we think we need to do someday because dinosaurs are just cool. So there are lots of topics still out there left to be done and of course we've taken some of our classic games like *Railroads* and *Pirates!* and as the technology has evolved we have been able to bring them back by taking advantage of the new technology, so there's plenty of stuff for us to work on and I don't expect to run out of ideas any time soon.

What can you tell us about that dinosaur game you were working on, what style of game is it?
We started it. We did three different approaches to it and it just wasn't as cool as dinosaurs needed to be. So we eventually said 'Well let's put it aside and maybe come back to it later.' The reason we prototype – we're very strong believers in early prototyping – is so we can figure out whether something is fun very early before we're committed to it because there is nothing less fun than having to finish a game that is not going to be fun, so we want to figure that out early on. And with the dinosaur game we tried a couple of different things. We worked probably a month or two on each of the three prototypes and just didn't feel like it was going to be as much fun as it needed to be, so we moved on to something else.

Does research plays a big part in your games?
[Laughs] Actually there's some degree, but we have a saying round here which is 'We do the research when the game is finished' because we actually don't want to put all sorts of obscure facts into the game to impress the player with how much we know about whatever. We tend to do that after the game is done

GAME
ORDERS
ADVISORS
WORLD
CIVILOPEDIA
480,000
1060 AD
3380 0.1.9
English
Legion
Moves: 1
Queelag
(Plains)

» [Amiga] Sid Meier's *Pirates!* was the first game from Meier that moved away from his early military simulators. He revisited the series in 2004.

EDMUNDO SANCHEZ
Assault Rifle

» [Xbox 360] Firaxis' last game was *XCOM: Enemy Unknown*, a superb update of the sci-fi strategy title, though Meier admits his involvement was fairly limited.

so that we can rationalise why the game is the way it is. Most of the game design decisions are based on what makes the game most fun and most interesting, because the idea behind a game like *Civilization* is not that we duplicate history but that you create your own using some basic historical pieces and scenarios. We're not crazy about overdoing the research. Some of the research is just to find a new civilisation, what's cool about this civilisation, what's cool about this unit, and just add that little touch so the players as they're playing are having fun but they are also maybe picking up some interesting titbits about the real world, which adds that bit of learning to the game.

Many of your games are regarded as influential, but what games have most influenced you?

SimCity in its day was a revelation for a lot of us as game designers. It started the constructive type game as apposed to just the destructive types of games. I've also really enjoyed the *Age Of Empires* series of games. When consoles came along I think they kind of demonstrated this plug and play approach which influenced us on the PC side of it, and we said 'Wow, it's really fun to just plug something in and start playing, and not have to read the manual or not have to figure out a bunch of things', so that was a bit of an influence. I've always enjoyed playing other designers and other companies' games to see what they're doing, things like *StarCraft*, and anything that Blizzard has done has been amazing. So I think we're all not really competing with one another, but trying to make gaming a really viable and popular form of entertaining.

You're famous for creating simulator and strategy titles, but are there any other genres that you enjoy and would consider writing for?

I really enjoy racing games, for example *Gran Turismo*. But I would never write that game because there's really so much preparation work and just getting to where you could do a viable game would be a big investment. So I really enjoy those games but it's just not a game that we have the resources to write. I enjoy racing games, and I also enjoy some of the first-person shooter games. Again, it's not something that I would probably want to design because there are a lot of good ones out there. We are trying to make new games and games that haven't been made yet. Probably the same games most gamers play are the ones I most enjoy, but the kind of cost of entry for games these days is pretty high in terms of wanting to get into a new type of game and is not something that's practical. Now of course, with indie games and tablets that might change, but to do a triple-A type game on a new topic I might like to try where games are already established it really wouldn't be practical at this point.

Firaxis recently worked on the *XCOM* series, what was that experience like, working on an established franchise you didn't create?

Each game really has its own story and development path, and *XCOM* was really a labour of love by Jake Solomon, who was the lead designer and has really been bugging us, for probably ten years now, to make a remake of *XCOM*, and we finally got tired of listening to him and said 'Okay, go ahead and do it. It's a very interesting game because it has a very vocal and enthusiastic fan base based on the original, which many people feel is one of the best games of all time. So trying to live up to that legacy was a real challenge and you're always faced with that question: how much can you change it to really respond to today's technology and how much do you really need to keep of the core concepts? Things like that. I think Jake did a really good job of walking that tightrope and creating a game that felt emotionally like the original but also really took advantage of all the new technology we have, and the look and feel of the game is very modern. I had fairly limited involvement. I would talk to Jake every now and then and we would discuss different things but it was really his design and his vision that led that project.

Finally, looking back, what do you feel have been your career highlights?

Being able to come to work everyday and do something that I really love to do, that's a constant highlight. I'm very fortunate to be able to do that. Certainly the reaction to *Civilization* and the way it's stayed alive for 20 years or so has been amazingly gratifying, and being able to talk to people who have played it and really see their enthusiasm for what they got out of the game and the enjoyment they got is something that gives me energy and encourages me to keep making games. I think being part of this industry is a highlight for me. It's a wonderful, creative, exciting place to be and I still enjoy every day of it.

» [PC] Sid Meier's *Sim Golf* was developed with Maxis. It allowed players to construct and play on their very own virtual golf courses.

SILENT
SERVICE

» [Amiga] MicroProse was bought by Spectrum Holobyte in 1993. Sid stayed on at the studio for about two years before setting up Firaxis.

» [PC] Firaxis continues to release *Civilization* titles, with the most recent being 2010's *Civilization V*.

TELL US SOMETHING WE DON'T KNOW

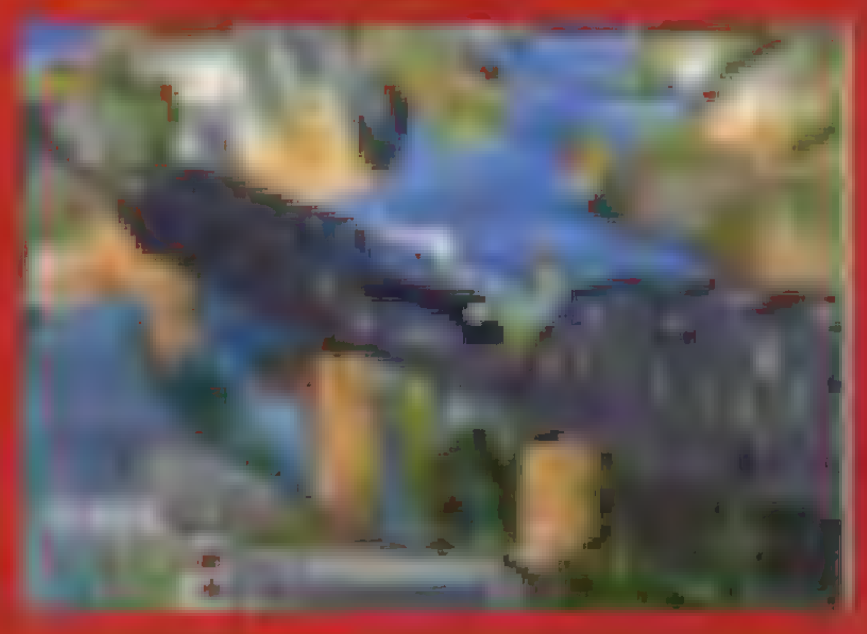
We ask Sid to reveal something very few people know about his three most iconic games

Sid Meier's Pirates!

Pirates! was actually inspired by a technological trick. I don't want to get too technical, but in the Commodore 64 version, which was the original version of *Pirates!*, one of our programmers came up with a cool trick where we could create images, pieces of art, by packing them into a font. And that allowed us to very quickly bring in new pictures. That's kind of why *Pirates!* is really a game about seeing a new piece of art combined with a menu. We just had a technology that allowed us to do a kind of storybook approach to adventure gaming.

Sid Meier's Railroad Tycoon

One of the little-known facts about that game is that it actually started out as a model railroad simulation. I said wouldn't it be cool if I could build a model railroad in an hour instead of however long it takes to build a real model railroad. So it started off as a model railroad simulation and we kept adding more and more pieces to it until it turned into a history of railroads.



Sid Meier's Civilization

One of the interesting facts about *Civilization* is that we didn't really feel it was going to be successful when we released it. We liked it, we thought it was fun, but it took three or four months for it to catch on and then we started to see some response. You know today when we think of people lining up at the stores at midnight to buy games, it was the opposite with *Civilization*. It took a couple of months for the word to get out there and then it gradually developed momentum, but at first it didn't look like it was going to do all that well. So, that was how *Civilization* turned out.

» Sid at his Firaxis studio, which is situated in Hunt Valley, Maryland.

**Special thanks to Matt Roche and Sid Meier for his precious time.
Sid Meier photography © Carla Waller, Carla Waller Photography**

Kirby's Dream Course

PINK ON GREEN

- » SUPER NINTENDO
- » HAL LABORATORY
- » 1994

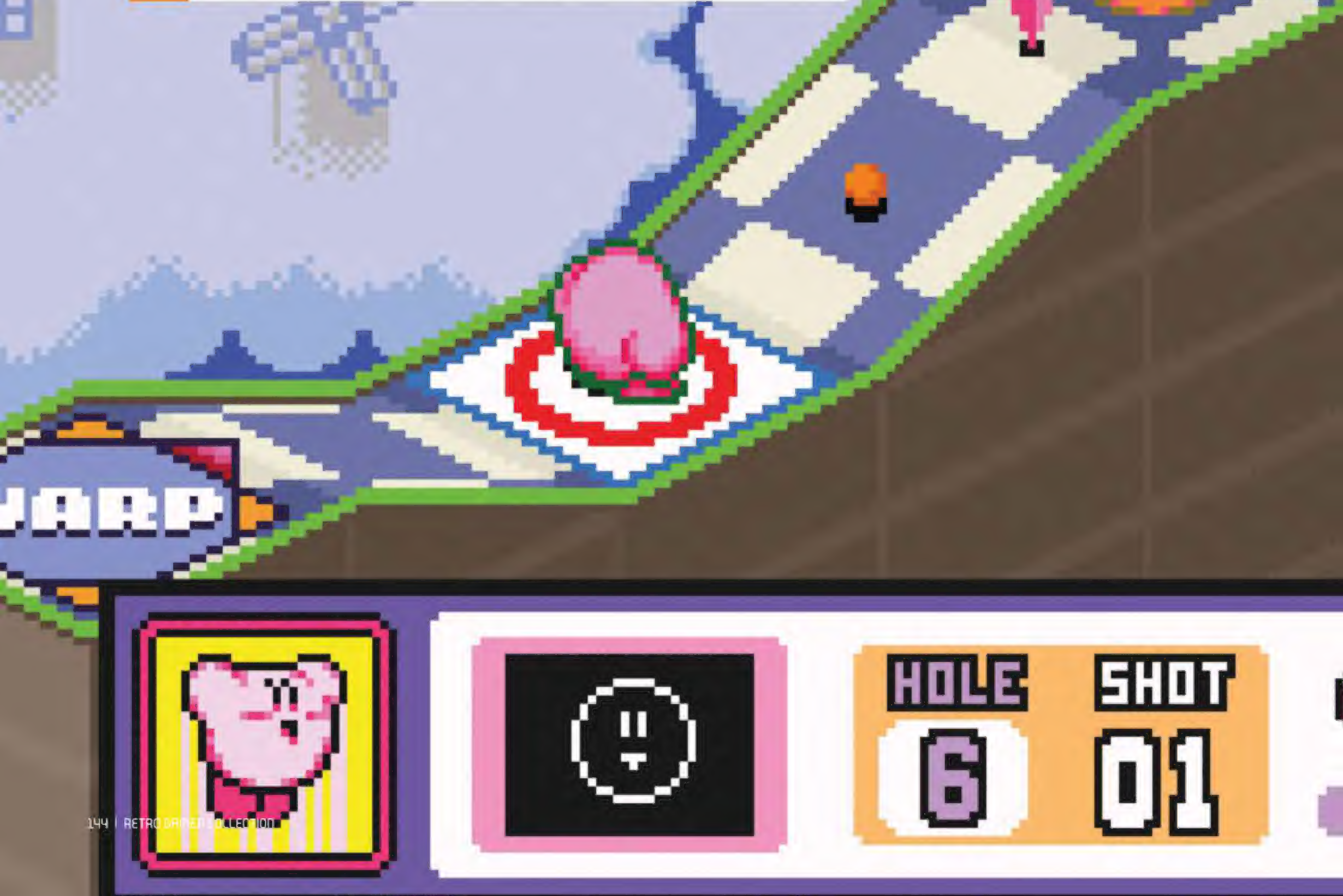
I've always enjoyed videogame golf more than the real thing. The problem with golf is that you need to be of a reasonable standard to get the most out of it. It can be incredibly unforgiving, take a lot of time to master the basics and if you're a novice then unless you enjoy kempt grass and a bit of mudlarking then prepare for a frustrating few hours.

Alternatively, of course, you could just play videogame golf, which allows you to sit back in a comfy chair and enjoy the objective of the sport (to get a small ball to fall down a hole in as few moves as possible) with the computer/console worrying about all the technique and stance correctness that has to be considered.

One of the better quirkier golf videogames can be found tucked away within the *Kirby* series. Released exclusively for the Super NES (though later made available on VC), the aim of *Kirby's Dream Course* is very simple. Kirby plays the role of the golf ball, and you must destroy the enemies by smashing him into them. You do this until just one enemy remains and, from fear of seeing a similar fate, scarpers – burrowing into the ground and leaving a nice hole for Kirby to fall into.

You can either chip Kirby into the air or putt him along the ground, and once you've selected the shot type and lined up the aiming line, you have the option to select some spin and the power of the shot. Dotted around the courses are various enemies, obstacles and floor pads – ranging from warp pads to switches that drain away pools of water. You have an allotted number of tries with which to finish a course, though you earn extra tries by hitting enemies and dropping Kirby into the holes.

Of course, no *Kirby* game would be complete without the pink gannet gaining different abilities, and these come in form of a variety of objects, including a parasol to slow the him down, a wheel power-up that speeds him up and a spark power that lets him attack enemies. While the cheery tunes and cutesy visuals of *Dream Course* probably won't appeal to many hardcore golfers out there, it sure beats walking home with bunker sand in your shoes.



= 02

HOLE 2
SHOT 01
= 03

HOLE
IN
ONE

HOLE 3
SHOT 01
= 02

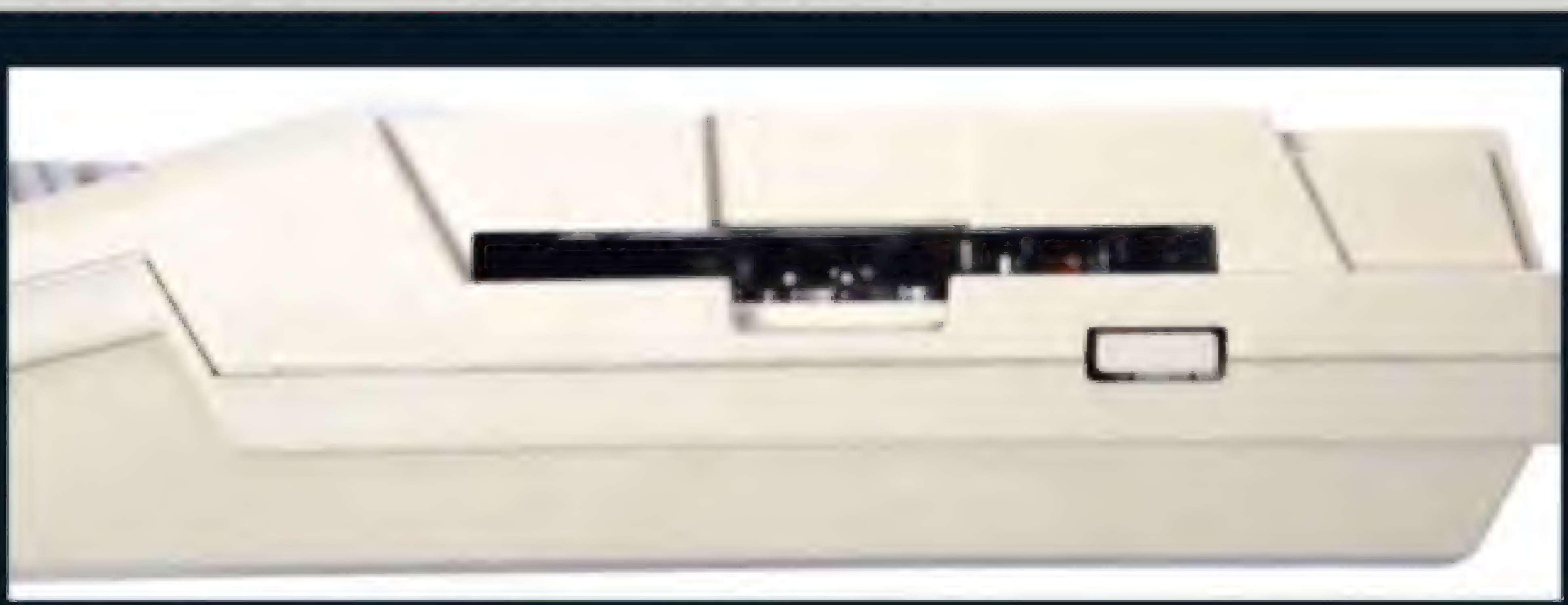
AMIGA 500 The Collector's Guide

The Commodore Amiga 500 is one of the most popular 16-bit home computers of all time with literally thousands of games available for it across a wide range of genres. Damien McFerran reveals the best games and peripherals to start off your new collection, or enhance your existing one

AMIGA

» **Manufacturer:** Commodore » **Models:** Amiga 500, Amiga 500+ » **Launched:** 1987 » **Country of origin:** United States

500



AMIGA 500 The Collector's Guide

Commodore
AMIGA 500
PERSONAL COMPUTER

» An example of the Amiga 500's distinctive looking box art. Later packs focused on games.

» The mouse proved to be just as good at playing games as it was navigating spread sheets.

BODY BLOWS
TEAM17

» Team17 did a lot of games that were very similar to other popular titles. This is obviously a *Street Fighter II* clone.

Why it's collectable

Following up on a machine as commercially popular as the Commodore 64 was never going to be an easy task, but few would argue that the Amiga wasn't a worthy successor. 1987's iconic Amiga 500 would secure the line's status with some of the finest 16-bit games of the era, making it ideal for collecting, while thousands of kids discovered that the computer bought to help with their homework was more than capable of competing with rival platforms of the time.

The Amiga 500's custom chipset was the reason for its immense power; a selection of co-processors handled tasks such as audio and video, leaving the main CPU free for other functions. The Amiga was also able to play back sound samples, making it a popular choice for coding demos and bedroom music makers and giving it an aural edge over its rivals. Like many home computers of the time, Commodore's machine wasn't explicitly intended to play games.

The Amiga's predecessor – 1985's Amiga 1000 – was aimed at business types and was supposed to compete with Apple's Macintosh, but like so many computers of the period, it ran games as well. However, due to the popularity of Atari's ST, many of the titles produced for the 1000 were straight ports of existing ST titles, which meant they failed to harness the power of the cutting-edge hardware within the system. To make matters worse, Commodore fumbled the promotion of the computer and poor sales forced a rethink – resulting in the birth of the 500 – a "cut-price" Amiga 1000 and the system which would ultimately shape the future of the brand.

Due to the dominance of IBM-compatible PCs and Apple Macs in North America, the Amiga 500 was not a massive success in that region. It was Europe where it achieved its greatest commercial triumph, thanks largely to the fact that consumers were keen to upgrade from their outdated 8-bit machines, such as the ZX Spectrum and C64. The Amiga 500 fought off stiff competition from its rival the Atari STE, and as the Nineties dawned, scored a number of high-profile exclusives like *The Chaos Engine*, which would prove so successful they would be subsequently converted to the emerging Japanese home consoles. They remain popular with collectors to this day.

Although the Amiga 500 was clearly a more mass-market machine than the Amiga 1000, Commodore was still reluctant to promote it as a gaming platform. However, in 1989 saw a price drop (£499 to £399) and the release of the all-important *Batman Pack*, which would enable the system to shift a respectable one million units in the UK that year. More game-focused hardware bundles followed (and are now highly collectible) making it clear that the Amiga 500 was just as serious a gaming platform as its console rivals.

The Amiga 500 was ultimately responsible for fostering the talents of studios such as Bullfrog, Team17, Sensible Software, DMA Design, Factor 5, The Bitmap Brothers and Psygnosis. Titles such as *Speedball 2*, *Populous*, *Sensible Soccer*, *Cannon Fodder*, *Turrican*, *Lemmings* and *Worms* all found initial

AMIGA
The New Amiga!
Hit the Surf!
Lightwave 4.0
Alien Breed 3D2
COMMODORE USER
GREAT GIANA SISTERS
COMMODORE AMIGA 500
THE NEW COMPUTER GENERATION
Assassin
Harmonic Nights
Hamall
Overdrive
Team 17

» Amiga games often came in huge boxes. They look lovely, but can make storage an issue for bigger collections.

» The Amiga 500 had plenty of magazine support during its life time, ranging from *Amiga Power* to *Commodore User*.

» The Amiga 500 used floppy disks. Many games would often require multiple disks, so check for missing ones when buying.

Did you know?

■ If you're serious about collecting for the Amiga 500 then we suggest you consider aiming for a complete Team 17 collection. The developer was extremely prolific on Commodore's machine, releasing a lot of high quality games like *Super Frog*, *Alien Breed* and the massively succesful *Worms*, often in distinctive, recognisable packaging. Ignoring AGA variants there are just under 20 games to collect, making it relatively easy to amass. If you want an even easier collection to seek out then we'd recommend The Bitmap Brothers, as all its games are relatively high quality and not too costly.

success on Commodore's computer before becoming international hits in their own right. It's this rich variety of titles – many of which are superior to the versions made for the Atari ST and PC – which makes the Amiga an appealing target for modern-day collectors. Like the Spectrum before it, the Amiga created an entire generation of bedroom coders, and as a result a sizeable "demoscene" grew up around the system.

Unfortunately, with such coding brilliance came a plague of piracy. The process of cracking games so they could be distributed on blank floppy disks was commonplace, and there wasn't a playground in the UK that didn't witness the sight of schoolkids exchanging disks with the very latest titles on. The volume of pirated software predictably impacted on genuine software sales, something which contributed to the Amiga's downfall in the early Nineties as developers and publishers migrated to platforms that were less susceptible to the problem.

By the time 1992 rolled around, the Amiga 600 and 1200 hit the market, but neither could replicate the success of the 500 and the Amiga brand started to lose ground to dedicated games consoles. The dismal performance of the Amiga CD32 made matters worse (making it collectible in its own right) and in 1994 Commodore filed for bankruptcy.

Throughout its lifespan the entire Amiga family saw approximately 12,000 different games, making the process of amassing a "complete" collection a daunting and almost impossible task. Even so, the average price of a boxed Amiga 500 game is comparatively much less than most of its direct contemporaries; you can pick up many titles for a few quid on eBay. There are notable exceptions, however; the infamous *Great Giana Sisters* was voluntarily withdrawn from sale by its publisher following consultation with Nintendo, who pointed out that it was a shameless clone of its *Super Mario Bros.* title. Mindscape's *Moonstone* is another rare release, its desirability driven by the fact that it was placed on the Bundesprüfstelle für jugendgefährdende Medien (Federal Department for Media Harmful to Young Persons) in Germany due to its intense depictions of blood and gore. The game has been known to fetch high prices in complete form.

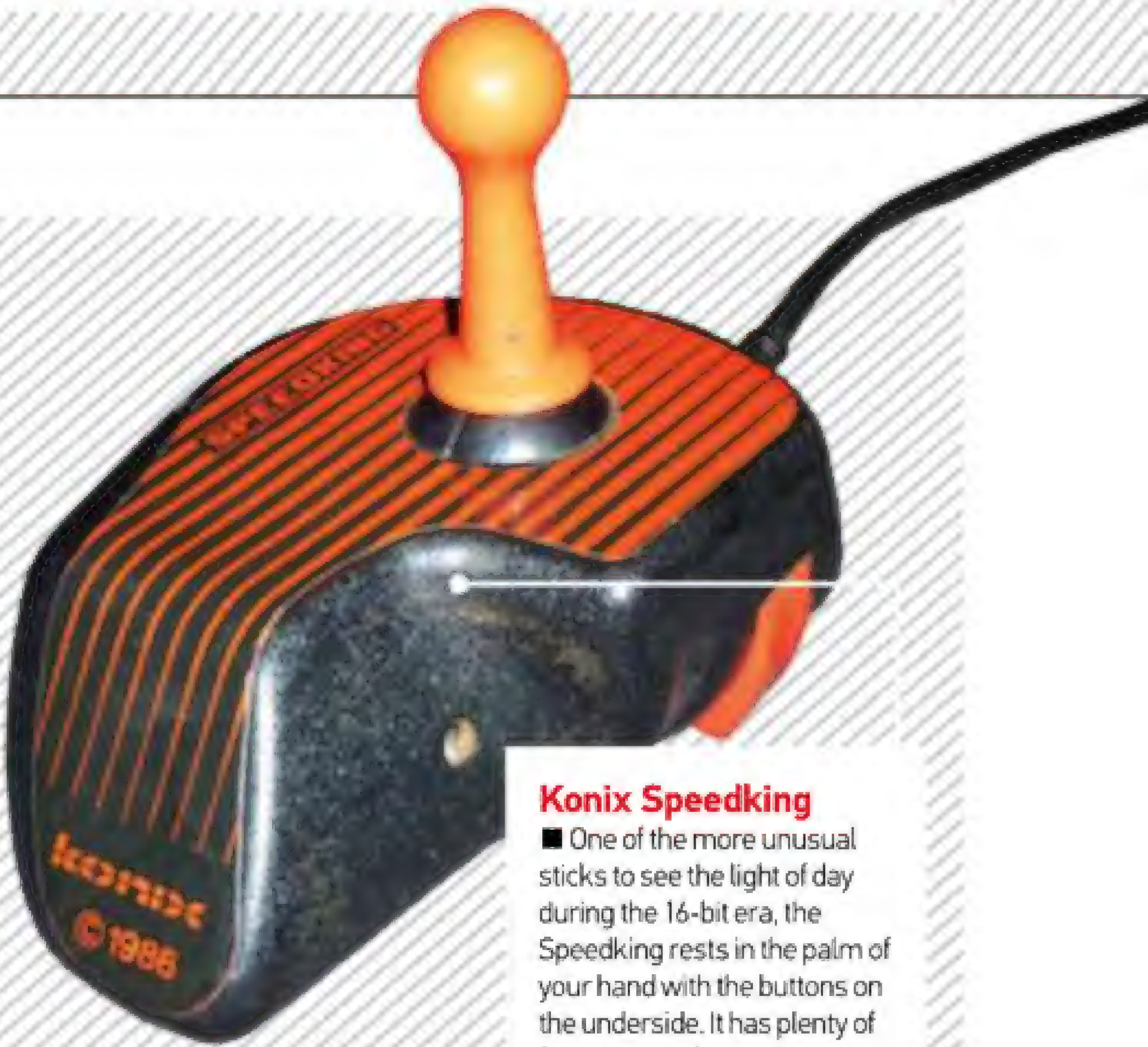
Just a little further down the scale of rarity you'll find the big-box versions of many classic Psygnosis titles with their extra components, including all three *Shadow Of The Beast* entries. Cinemaware's Amiga lineage is also collectable, thanks to its lush cover art and the highly-regarded nature of the games themselves – *It Came From The Desert* and *Defender Of The Crown* are cult classics, even by today's standards. Elsewhere, limited-run curiosities such as the anime-themed puzzler *Gem'X* and the complete version of *Beneath A Steel Sky* fetch high prices.

The task of collecting all of the Amiga 500's best games is not one to be taken lightly, but you can pick up a working system and a selection of key titles for a modest amount of cash. You'll need to consider the volatile nature of floppy discs, but if you're serious about amassing a collection of classic games across a variety of genres, the Amiga 500 is a perfect choice.

THE PERIPHERALS

Quickjoy Jet Fighter

■ Ever wanted to feel like you're in the Tom Cruise flick *Top Gun*? Then this is the controller for you. As the name suggests, the Jet Fighter mimics the stick from a multi-million dollar combat aircraft.



Konix Speedking

■ One of the more unusual sticks to see the light of day during the 16-bit era, the Speedking rests in the palm of your hand with the buttons on the underside. It has plenty of fans, even today.

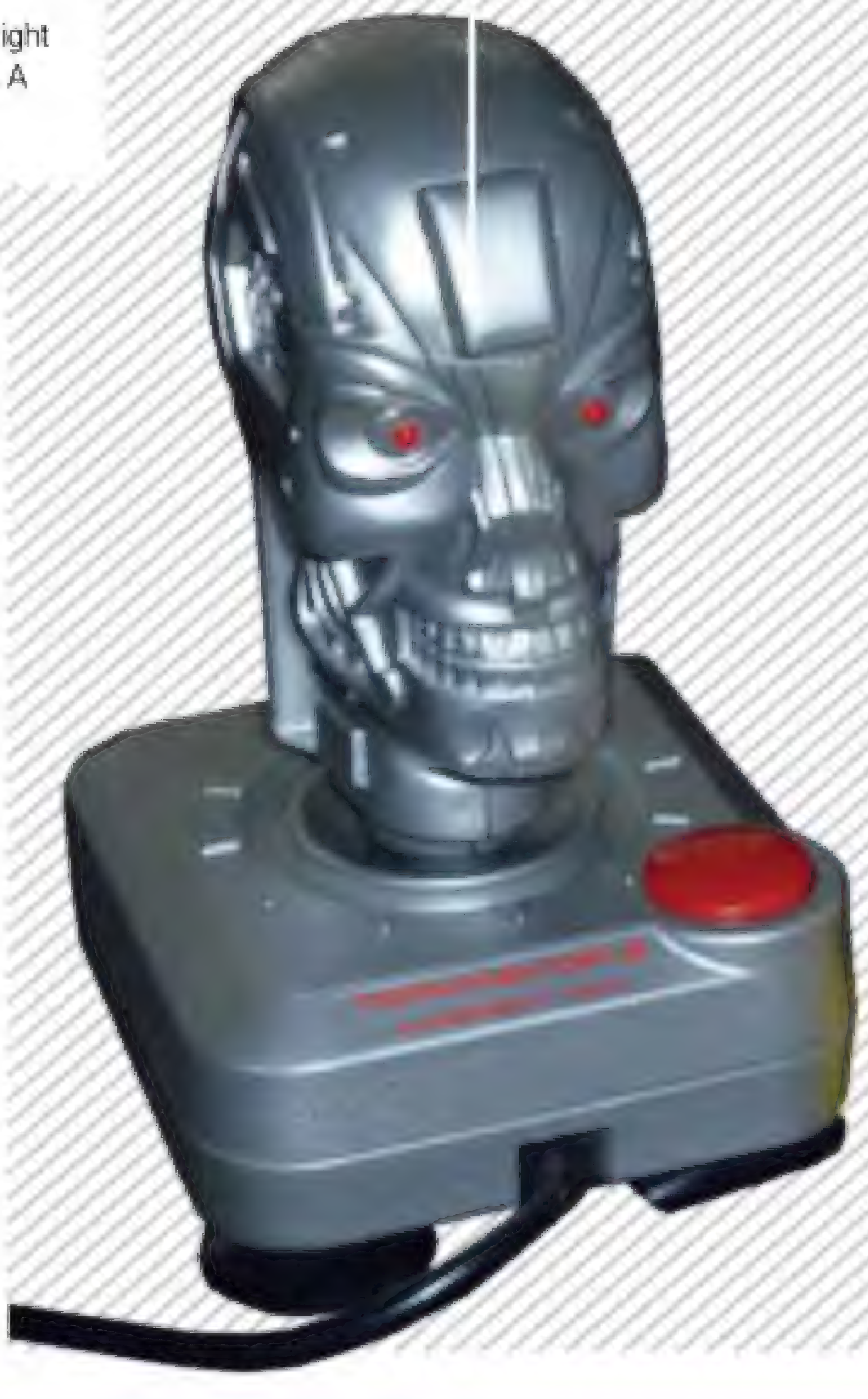
HORI
Fighting Stick Multi

Hori Fighting Stick

■ You might assume that Hori's fighting-grade sticks are a recent invention, but the Japanese company was producing controllers way back in the 16-bit era, too. A solid controller for your Amiga action adventures.

Cheetah Annihilator

■ The *Annihilator* is a common sight even today, thanks to the fact that it sold plenty of units back in the day. While it's not quite as refined as some of its rivals, it provides accurate control and can withstand plenty of punishment.



Terminator head

■ Proof that some companies will stop at nothing once they've secured an expensive movie licence, this stick might look impressive, but it's incredibly uncomfortable to use. A collector's item, we're afraid, and little more.

Essential Joysticks

The Amiga may have become famous thanks to its dazzling selection of games, but it's important to remember that it was sold first and foremost as a computer, aimed at business types rather than hardcore gamers. As a result, early models didn't come with any kind of gaming controller – which meant that a whole host of third-party sticks appeared, each trying to offer something different to the rest.

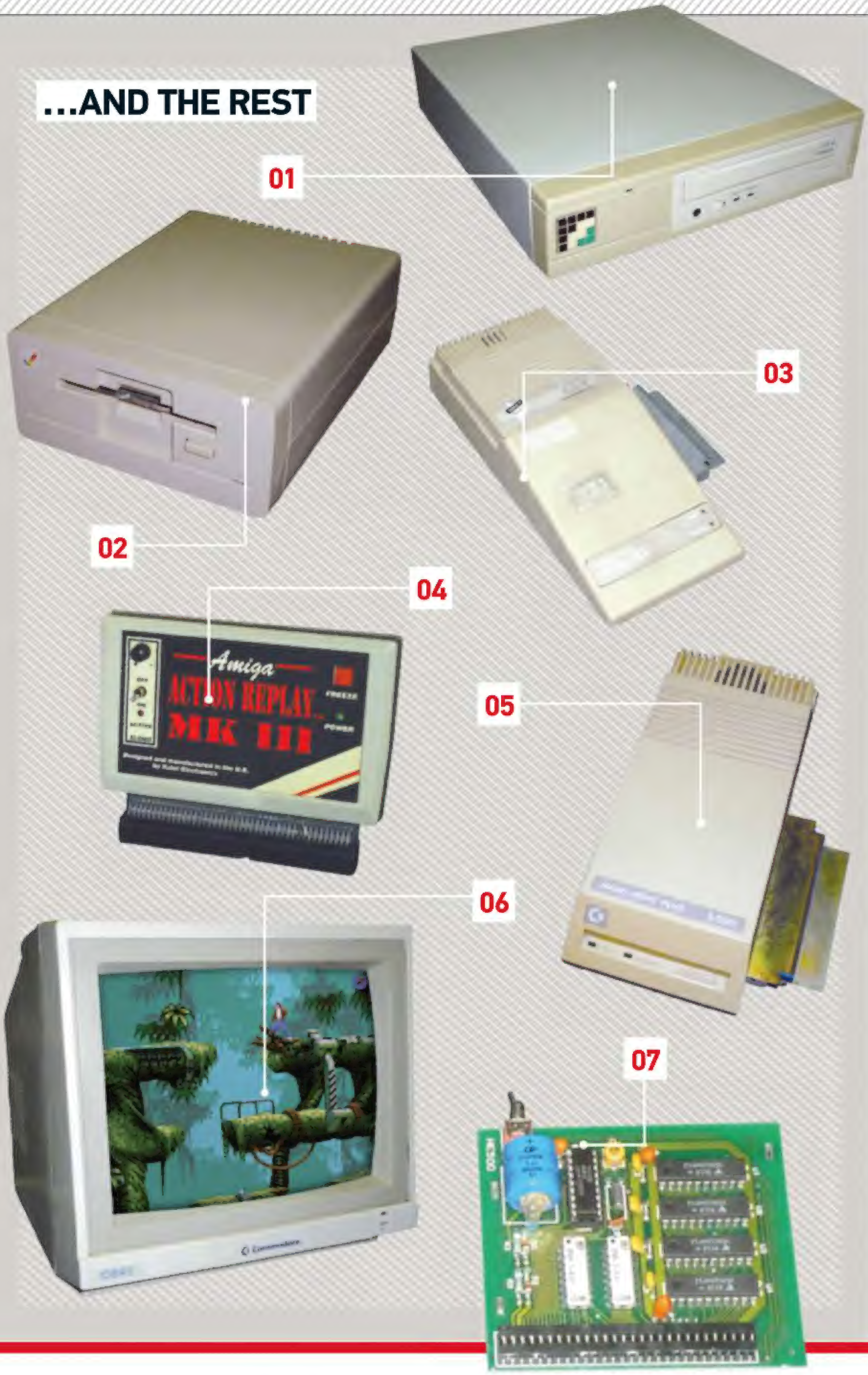
In fact, it could be said that some of the sticks available for the Amiga possibly went a little too far in their efforts to stand out, using popular figures from comics and movies to give them that little something extra. Characters such as Batman and the Terminator were both called upon when it came to crafting a unique stick, although once the novelty of waggling the Dark Knight around had worn off, you were usually left with a very uncomfortable hunk of hardware.

It goes without saying that a decent controller is an essential item in the armoury of any self-respecting Amiga fan, and picking the right one is often a matter of personal preference than anything else. Manufacturers such as Cheetah, Konix, Powerplay, Sigma and Quickshot all produced sticks aimed at home computer gamers, but the Super Pro Zip Stick and Kempston Competition Pro are regarded by many fans as the best of the best.

Both are highly responsive, boast large buttons and showcase comfortable designs, making them a must for any serious collector. The Competition Pro is such an esteemed controller that it has recently gone back into production despite the fact that original creator Kempston no longer exists – Individual Computers and Speedlink handled the manufacturing process this time around.

Because the Amiga uses the same 9-pin interface as the Atari 2600, Sega Master System and Sega Mega Drive, it's also possible to use controllers intended for those formats – although you need to remember that only one fire button is supported, so you won't be able to use the additional keys on the Mega Drive pad.

...AND THE REST



01. External CD Drive

Thanks to the legacy of the CDTV, the Amiga range was one of the first platforms to embrace the power of the CD-ROM storage medium – sadly, it was a little too early to the party. Even so, an external CD drive is a handy item for any serious Amiga collector – just check that the system you have is compatible before placing down your cash.

02. External Floppy Drive

With some Amiga games coming on multiple discs, an additional external floppy drive helps cut down the amount of swapping you have to do. When you've got two-disc games this is a life-saver, but when you've got games which come on several floppies, it prevents the onset of repetitive strain injury.

03. GVP A530 Turbo

Released in 1992, this module bolts onto the side of the Amiga 500 and grants it additional processing grunt and memory. Modern "Accelerator Cards" are also available, which benefit from more recent developments – and they're also cheaper – but if you're going for authenticity, seek something like this out.

04. Action Replay

It wasn't just home consoles which got a version of Datel's cheeky cheat cartridge – the Amiga had a slice of the action, too. This fiendish little device allows you to crack your games wide open, drastically reducing the challenge in the process.

05. A590 Hard Drive Controller

Back in the day, this unit would allow you to hook up a hard drive of around 80MB in size, but modern Kickstarter ROMs have pushed this figure higher. Getting one of these to work is quite a task, but it's another cool piece of collectable hardware.

06. 1084s Monitor

Playing games on your massive 42" LCD TV is one thing, but for the truly authentic experience you need to get yourself a decent monitor. Released by Commodore alongside the Amiga, these units were designed to bring out the best in the system. Games look colourful, vibrant and incredibly detailed.

07. Amiga A500 Trapdoor Expansion Memory

512K is all the memory the Amiga 500 shipped with, but using the A501 you could up to this an impressive 1MB – offering better multitasking support and enhanced performance all-round.

TOP GAMES TO PLAY

Eye of the Beholder II

■ Westwood's second stab at the D&D world is an improvement over its predecessor – and that's saying something, as the original took the *Dungeon Master* template and expanded it massively. The third game – not handled by Westwood – remains something of a disappointment.

Sensible World of Soccer

■ Considered by many to be the best football game ever, *Sensible World Of Soccer* was a revelation at the time of release, allowing you to experience almost every facet of the professional footy world – right down to managing your team and organising transfers. 1,500 teams and 27,000 players.

Speedball 2

■ The Bitmap Brothers really hit the ball out of the park with this futuristic and ultra-violent sport. Gorgeous to look at and absolutely addictive in two-player mode, *Speedball 2* is arguably one of the Amiga's defining releases.

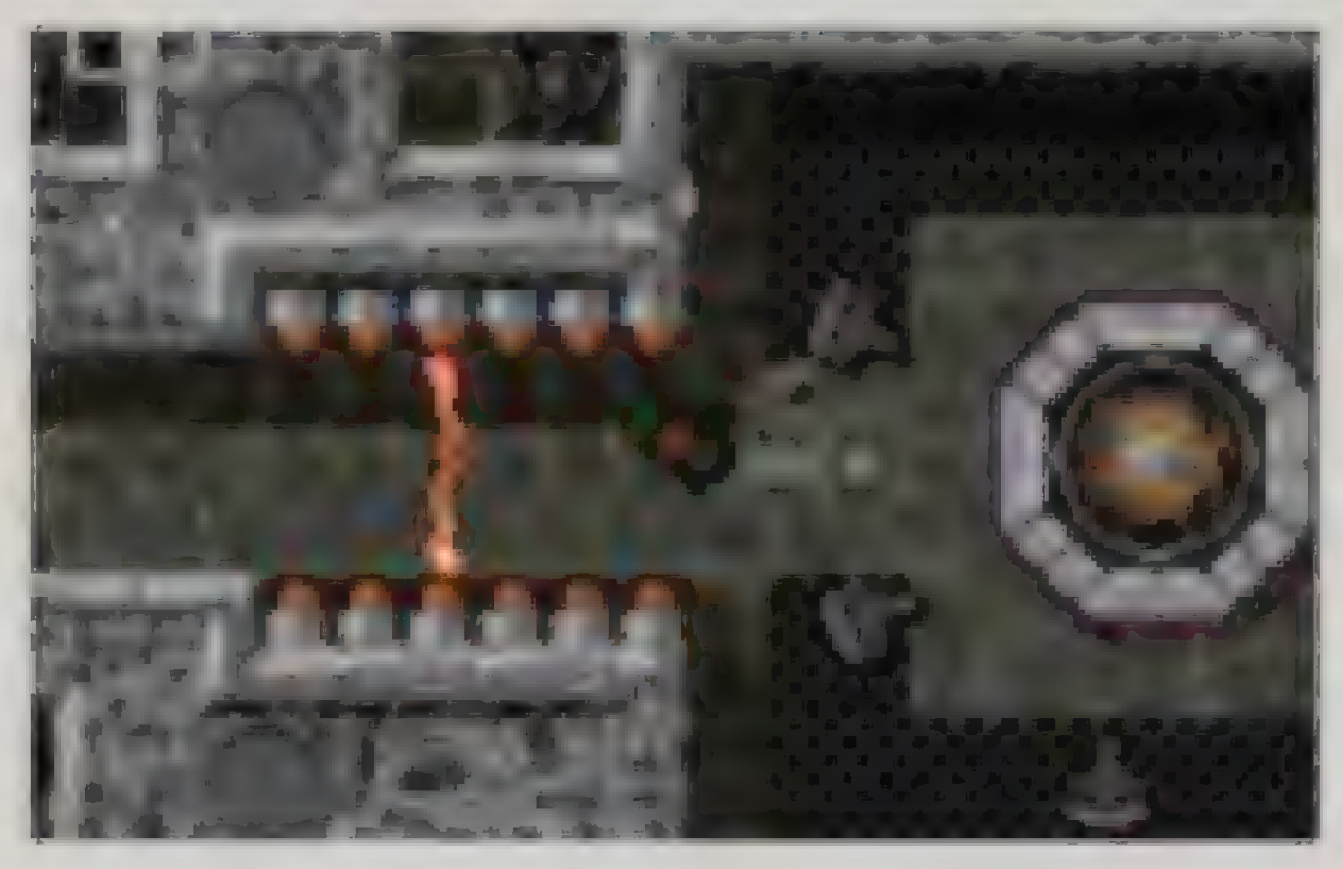
Cannon Fodder

■ The use of the poppy image caused quite a stir when *Cannon Fodder* was released, but the cartoon-like violence is laughably tame when compared to modern titles like *Call Of Duty* and *Medal Of Honor*. Despite the controversy, this remains a fantastically playable game, with brilliant controls.

The Chaos Engine

■ Another Bitmap Brothers classic, *The Chaos Engine* is a steampunk shooter which showcases why its developer was considered the master of 16-bit pixel art back in the early Nineties. A sequel in 1996 was even better, but the original is more famous.

PLAY THESE NEXT



Alien Breed

■ Team17's most famous release (outside of *Worms*, naturally) is this atmospheric top-down blaster, which owes a massive debt to Ridley Scott's Hollywood horror *Alien*. Tense action, a stern challenge and awesome 2D visuals ensure this stands the test of time – as the recent release on the iPhone proves beyond all doubt.

Worms

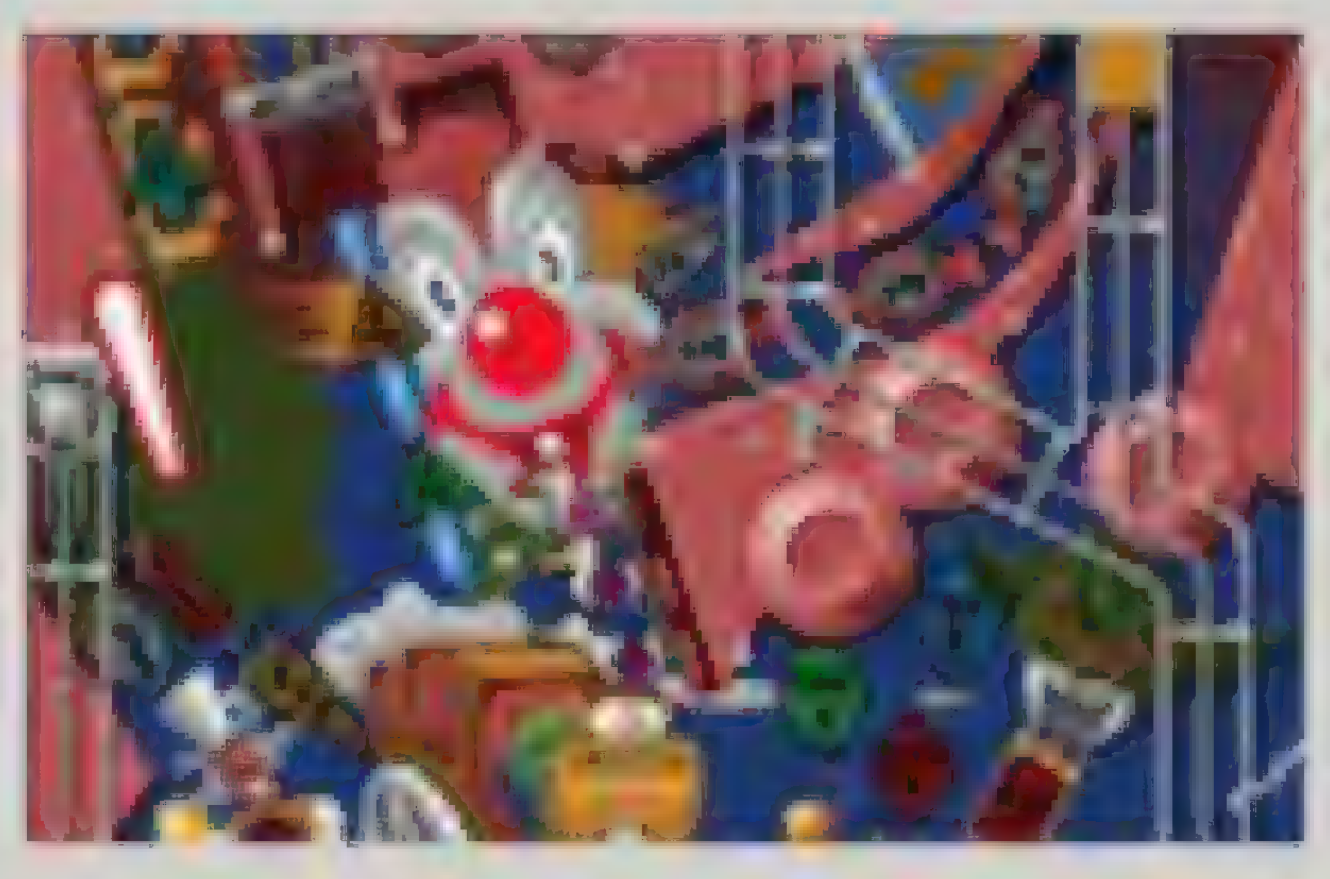
■ The fact that the *Worms* series is still going strong even to this day should tell you all you need to know about the quality of this game. Insanely addictive in both single and multiplayer, the turn-based combat is peppered with humour, lending the game a universal charm. Despite the sequels, the first game remains the most pure edition.

Super Cars 2

■ Top-down racing brilliance from Magnetic Fields and Gremlin Graphics, with a good measure of frantic combat thrown for good measure. The ability to upgrade your vehicle adds depth, and the two-player mode is capable of making (or breaking) friendships. Topped off with amazing visuals, this is another Amiga classic.

Hunter

■ Predating the likes of *Far Cry 3* by more than two decades, *Hunter* is an 3D open-world adventure which sees you navigating a collection of islands via a wide range of different vehicles – including cars, hovercraft and even surfboards. Tremendously influential, *Hunter* is remarkable for the degree of freedom it affords the player.



Pinball Fantasies

■ The sequel to the equally brilliant *Pinball Dreams*, *Pinball Fantasies* is still regarded by many fans as the best representation of pinball on any digital platform. The bold graphics remain impressive, and the ball physics and table designs are spot-on. The sequel – *Pinball Illusions* – is also worth checking out.

Xenon 2: Megablast

■ Drastically different from its prequel, *Xenon 2* cemented The Bitmap Brothers' reputation as developers of note – although it should be mentioned that they only designed the game, with the actual coding being done by The Assembly Line. A sampled soundtrack only served to make the game seem even cooler.

Gods

■ Another gem from The Bitmap Brothers showcasing some of the best visuals you'll see on any 16-bit platform. This puzzle-filled action platformer illustrates the Brothers' masterful skill with the Amiga hardware; it would be converted to other formats, but the Amiga version is the definitive article.

Hired Guns

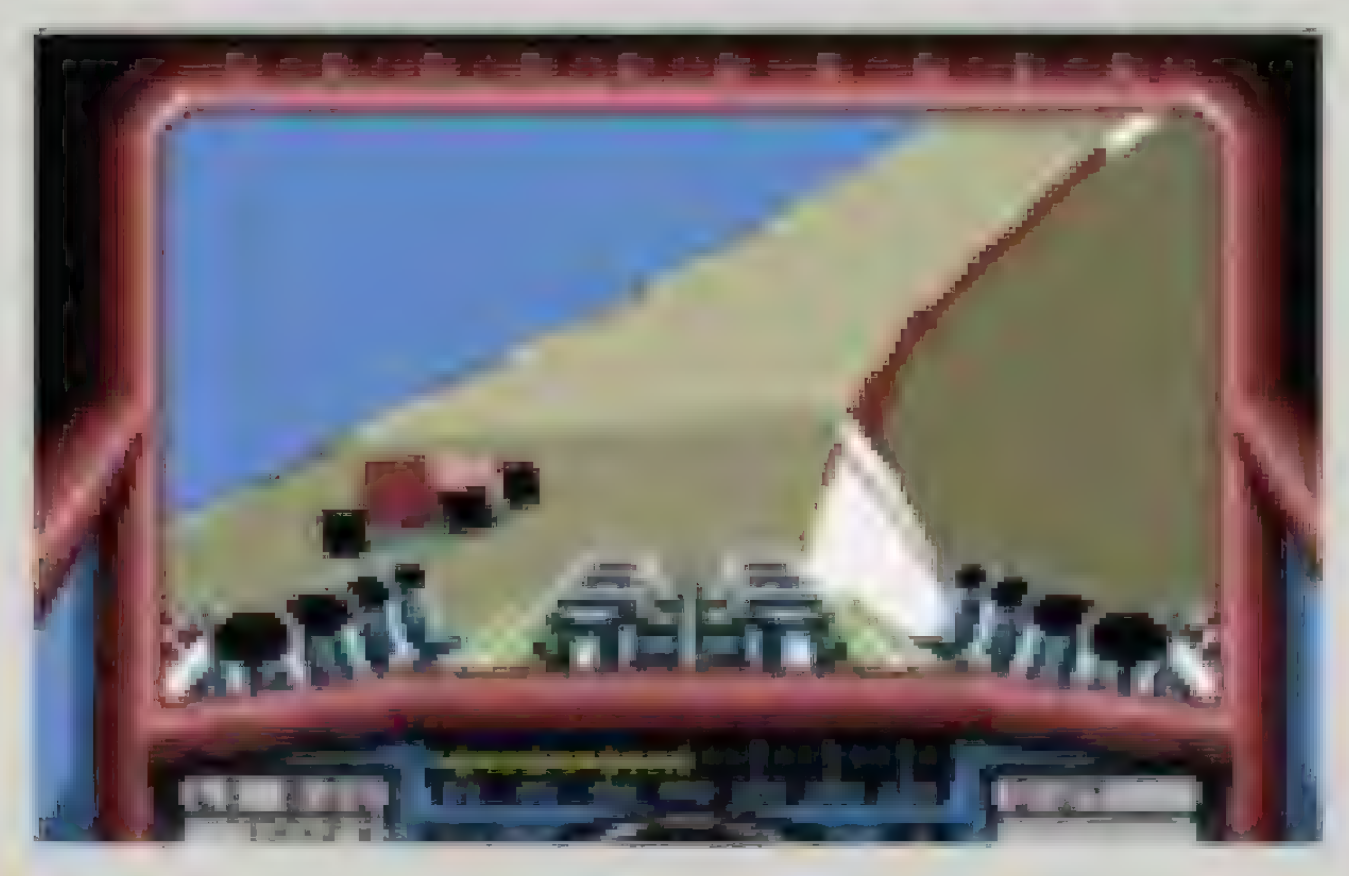
■ This *Dungeon Master*-style RPG grants control of four different characters, with the twist being that they move independently and have their own windowed screen. One of DMA Design's most accomplished releases, and a nice deviation on the genre.

Lemmings

■ One of the most famous video game brands of the early Nineties, *Lemmings* was ported to practically every platform that existed at the time, but is best known for its outing on the Amiga and Atari ST. It illustrates perfectly how a mouse-driven interface can enrich a game like this.

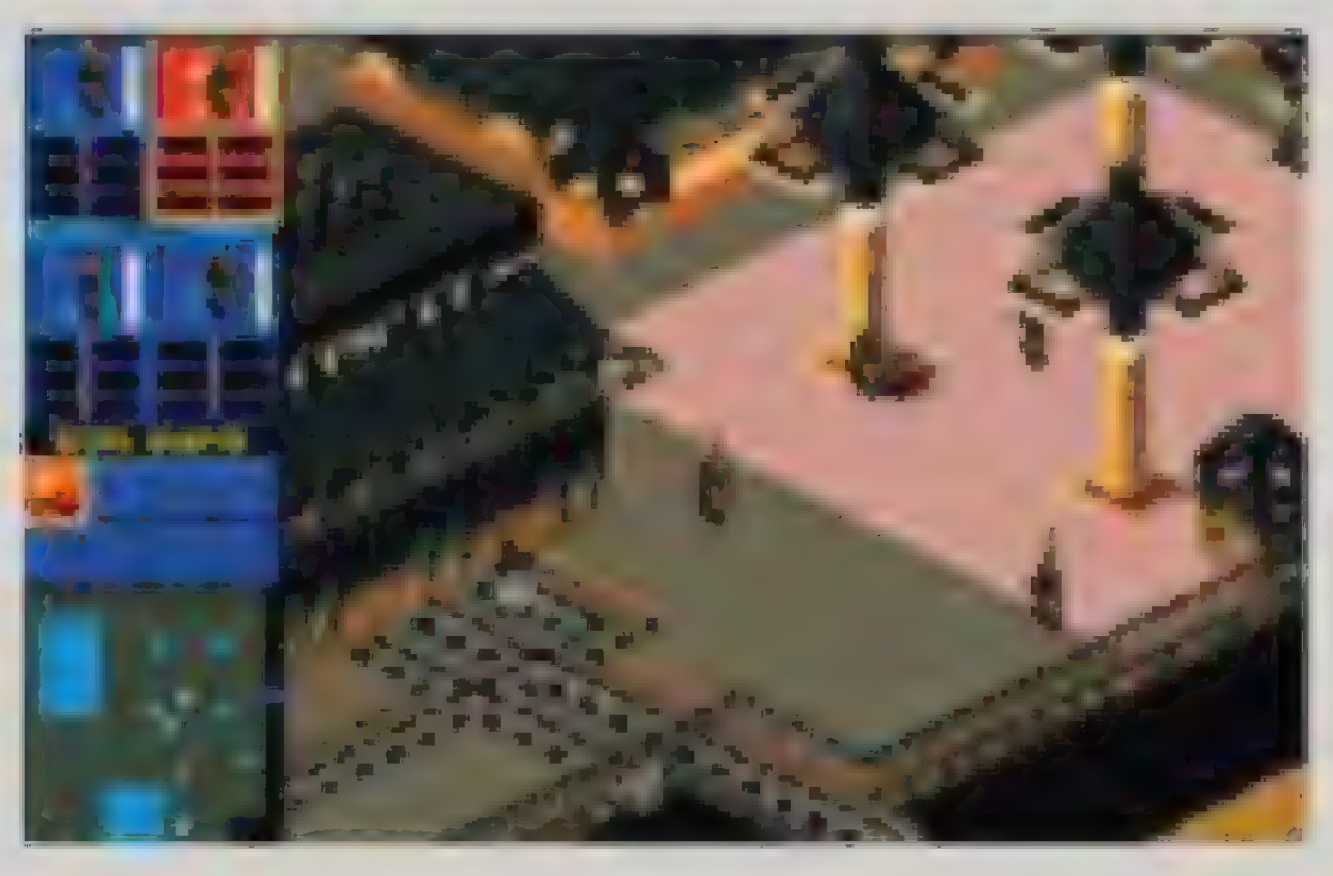
Shadow Of The Beast 2

■ *The Shadow Of The Beast* series is famous for favouring style over substance, but there's still something undeniably intriguing about the trilogy. Roger Dean's fantastic cover artwork pulls you in, and the high-quality visuals maintain your interest – even when the rock-hard difficulty level is making your question your skills.



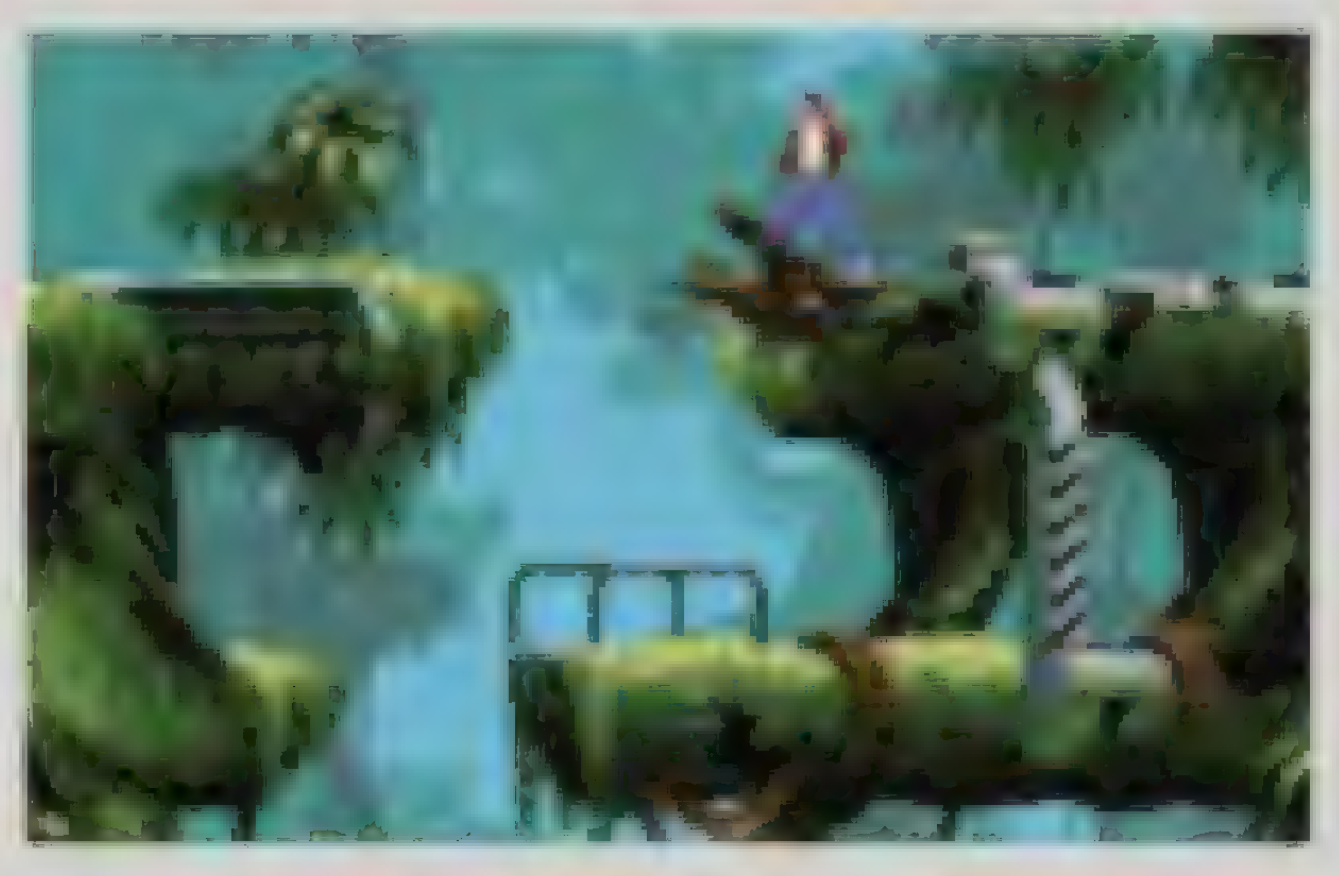
Stunt Car Racer

■ Geoff Crammond's seminal 3D racer is like being on a rollercoaster, with the added danger of falling of the edge. It says a lot about the standard of this game that nothing else has ever really come close to matching it, even after all these years. Boasting fantastic physics and beautifully designed tracks, it's an essential part of any collection.



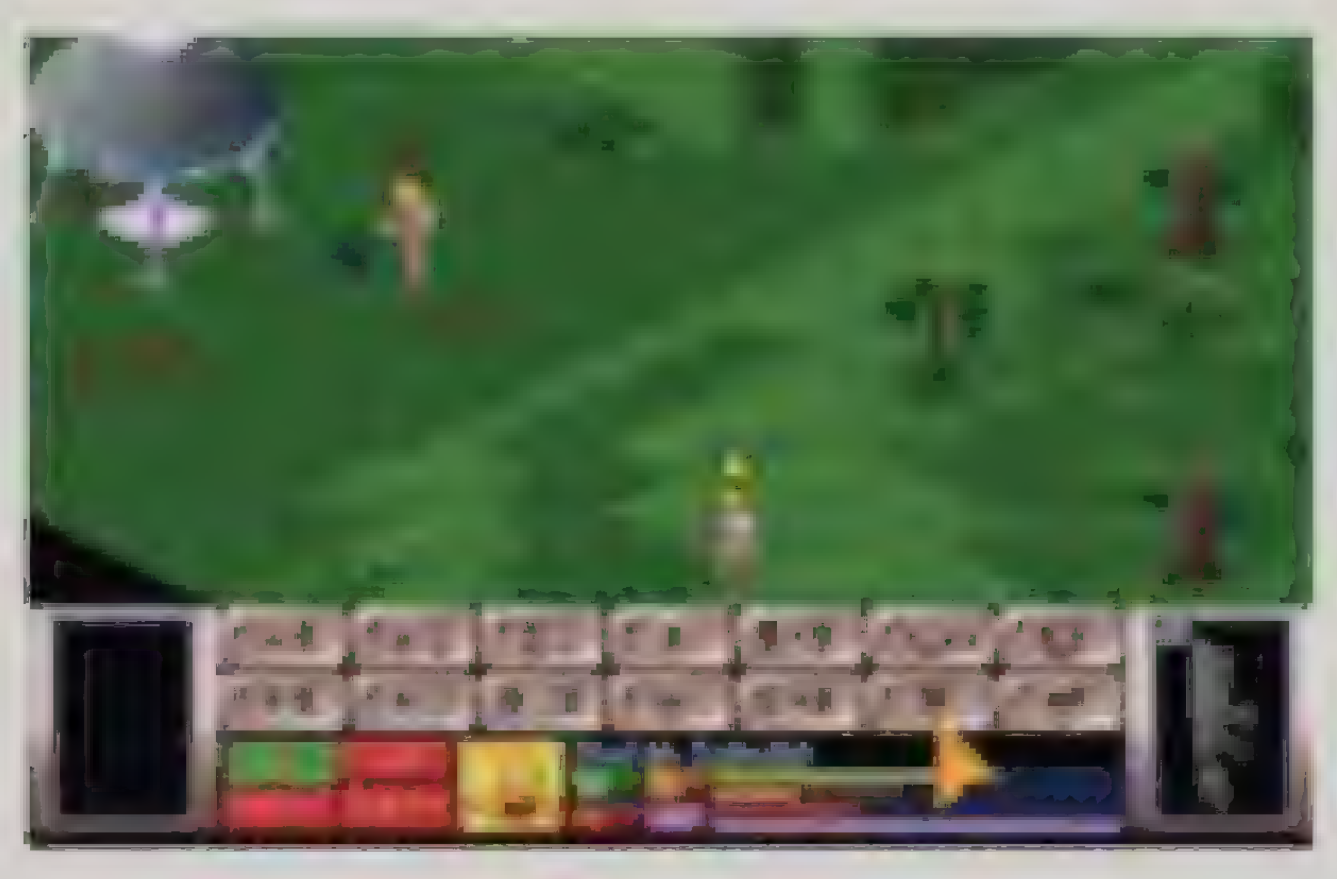
Syndicate

■ Coming quite late in the life of the Amiga, Bullfrog's iconic real-time strategy title was recently rebooted as an FPS, with mixed results. The original game is a grim vision of the future where corporations rule the world, placing you in the shoes of one such firm with the aim of achieving world domination.



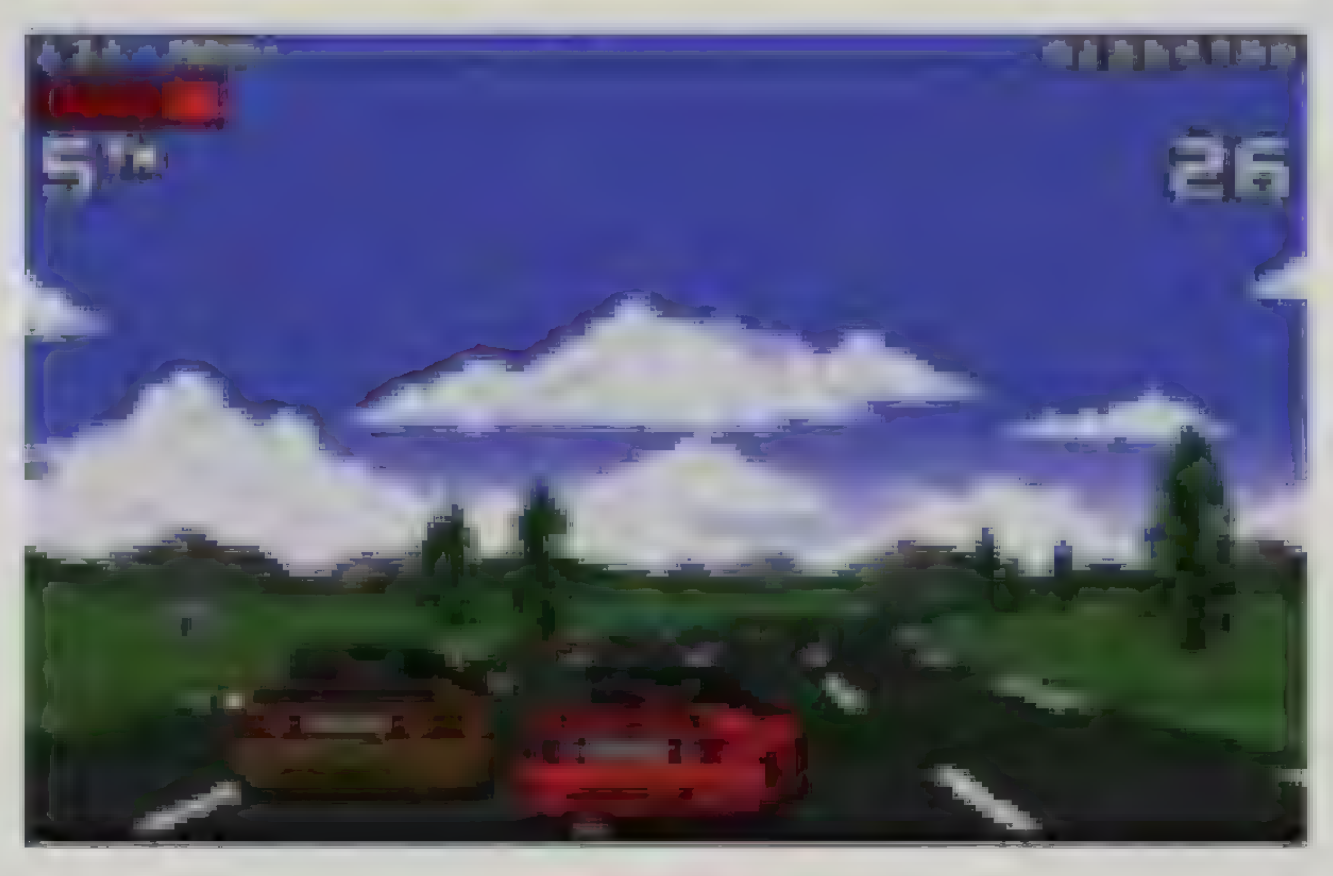
Flashback

■ The spiritual sequel to *Another World*, this 2D platformer features silky-smooth animation, taxing puzzles, epic action and some of the best cut-scenes on a non-CD release. It's being remade for modern consoles as we speak, but it will need to be pretty special to match the impact of the original release.



UFO: Enemy Unknown

■ Julian Gollop's best-selling turn-based strategy title builds on the work done in his previous games, such as *Rebelstar Raiders* and the excellent *Laser Squad*. Recently remade for PC, 360 and PS3, this isometric title is regarded by some as one of the greatest games of all time – and rightly so.



Lotus Turbo Challenge 2

■ Before *Gran Turismo* and *Forza*, this was the best option for petrolheads wanting to experience the thrill of racing thousands of pounds of performance sports car really, really, fast. Smart visuals combine with a superb sense of speed and four-player split screen to deliver a solid racer.

TOP RAREST PAL GAMES

Moonstone

■ This medieval hack-and-slash action title gained notoriety upon release for being banned in Germany due to its blood and gore, yet it received fair-to-middling review scores. Even so, the game's reputation as a video game nasty has kept its value high – copies go for well over £100 on eBay.

Gem'X

■ This anime-themed puzzler is another Amiga title which isn't all that great when it comes to pure gameplay, but is extremely hard to track down in the wild. Although scantily-clad anime girls were a key factor in the game's appeal to a certain market, it's all a little tame.

Last Battle

■ Based on the Mega Drive version – which in turn is a westernised version of the Japanese game *Fist Of The North Star* – this curious conversion by Elite isn't particularly memorable, aside from the fact that it's rarer than rocking horse droppings.

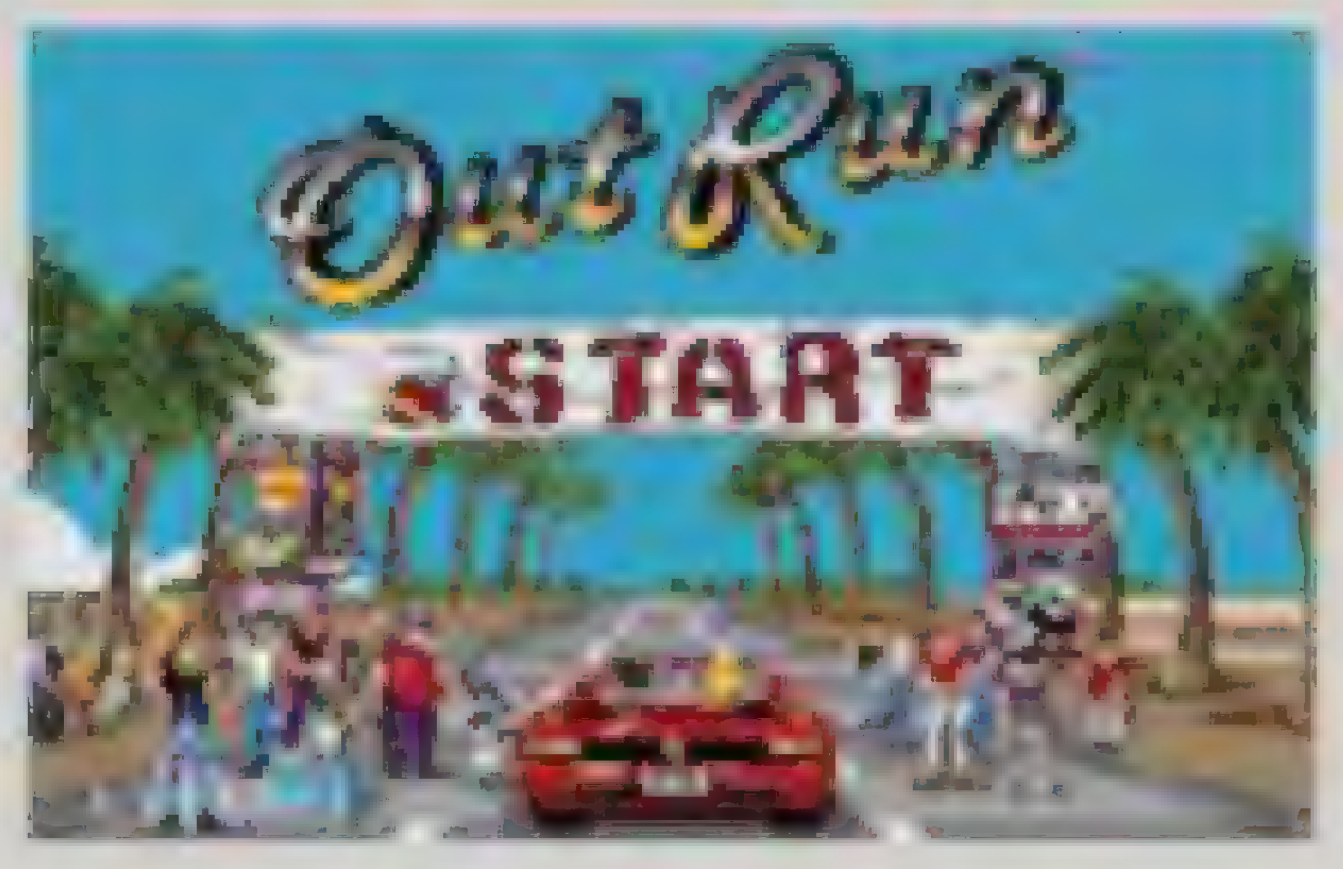
Jim Power In Mutant Planet

■ With its distinctive visuals, curious mixture of gameplay styles and pumping soundtrack courtesy of Chris "*Turrican*" Hülsbeck, *Jim Power* manages to overcome the obvious shortcomings of its terrible cover art and become a worthwhile action title.

Traps 'n' Treasures

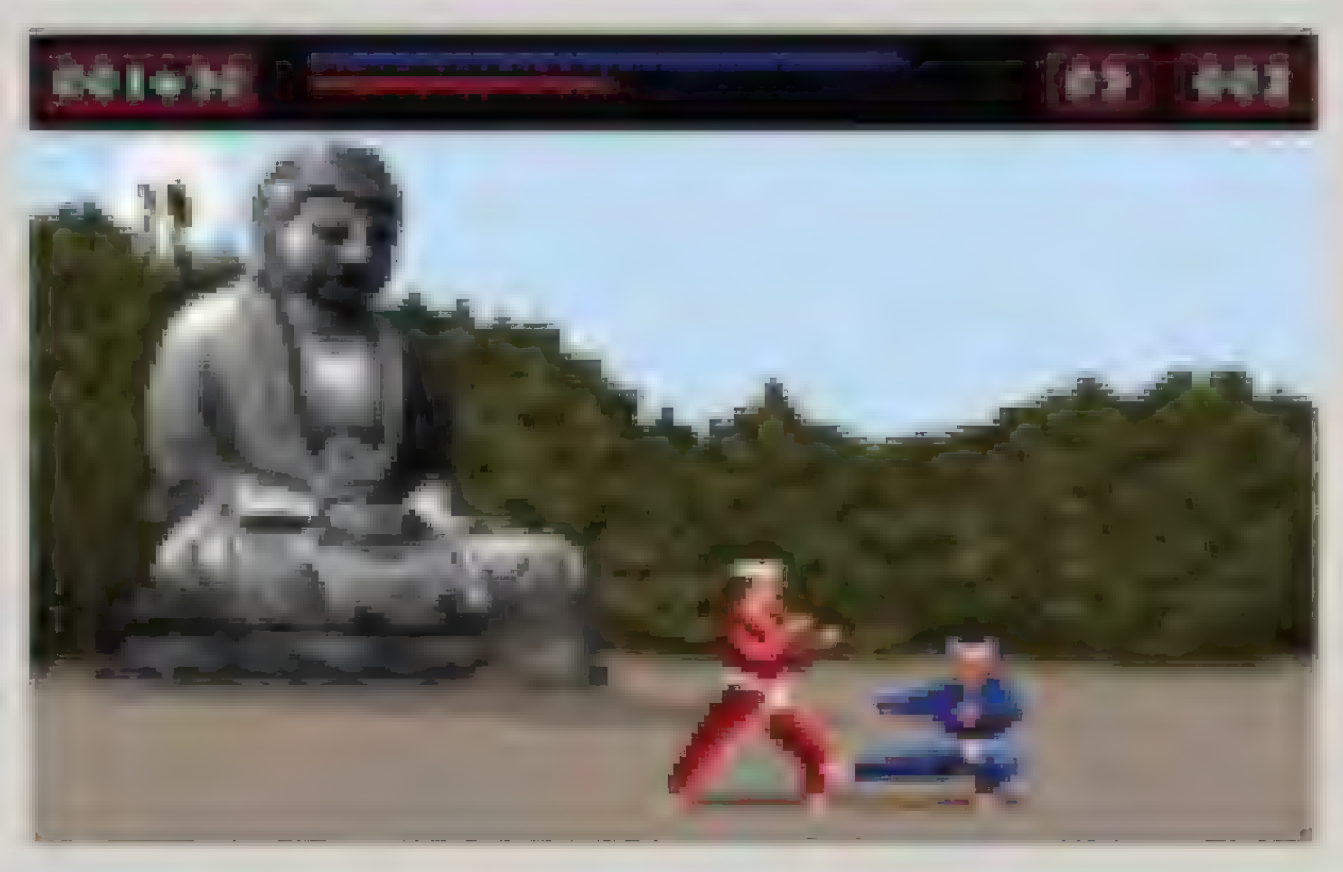
■ A colourful clone of Sega's *Wonderboy In Monsterland* series (developer Roman Werner lists Capcom's *Son Son II* as one of his all-time favourite games), *Traps 'n' Treasures* boasts some lovely hand-drawn 2D visuals and compelling action.

GET THESE NEXT



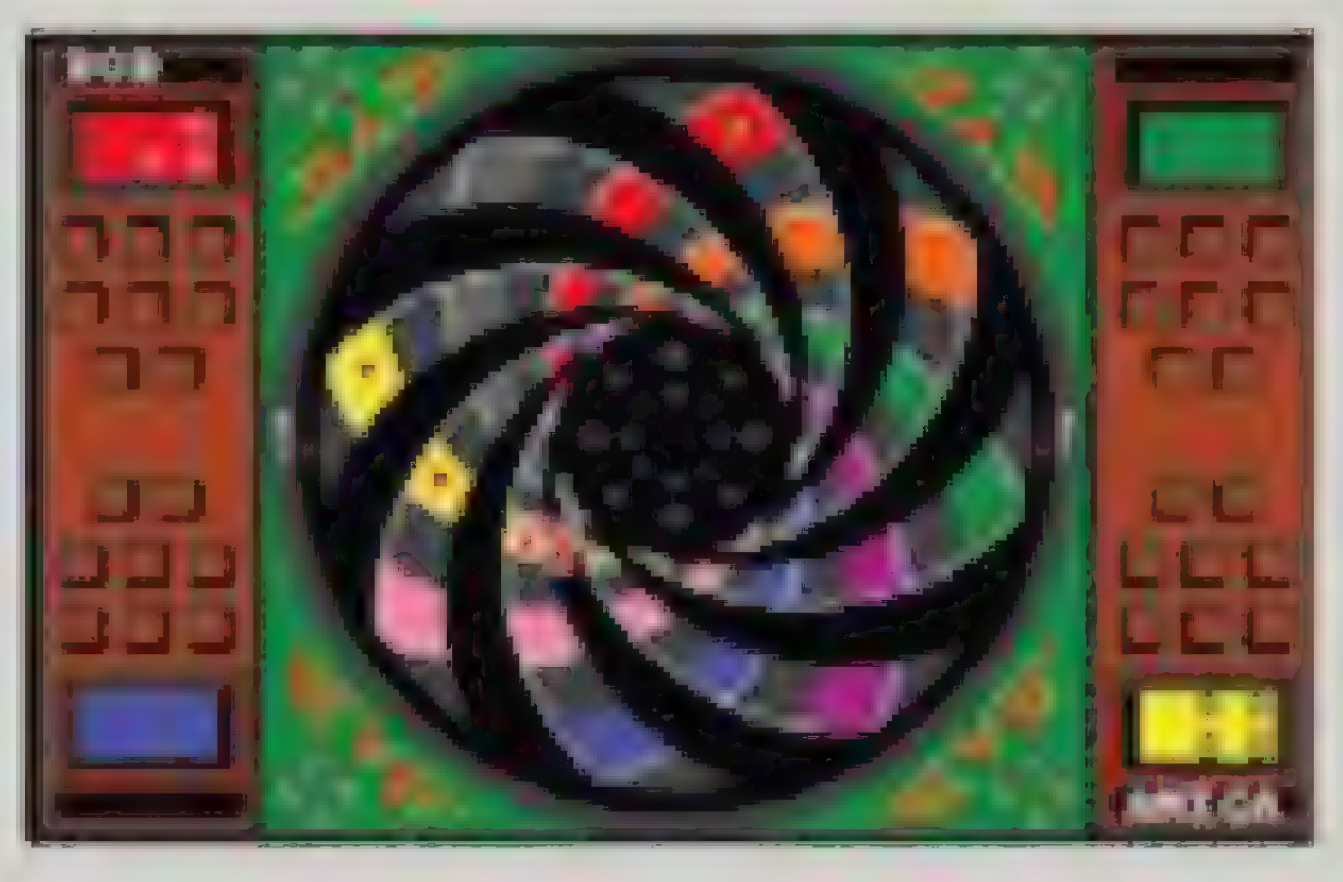
OutRun (Sega version)

■ The Sega-published US version of Yu Suzuki's popular arcade racer is much harder to track down than the UK US Gold-published edition, but it's the same game on the actual disk. We actually prefer the UK box art if we're honest, but serious collectors will no doubt want to add this to their "must buy" list.



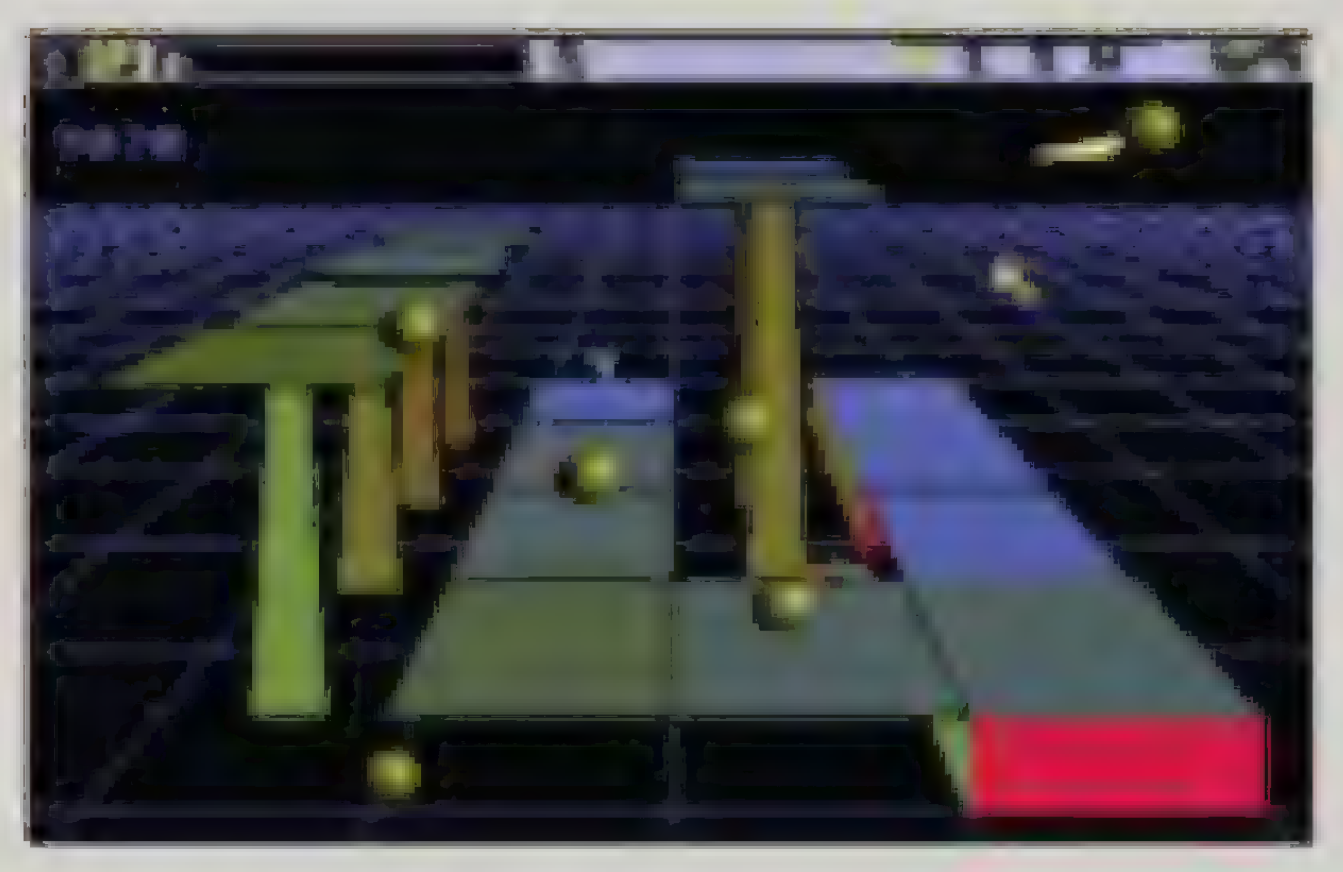
Amiga Karate

■ Its triangular box might not sit well on your shelf, but it certainly makes this martial arts title stand out from the other games in your collection. Looking a lot like *Archer Maclean's International Karate+*, this isn't quite as accomplished, but it remains an extremely enjoyable fighter in two-player mode.



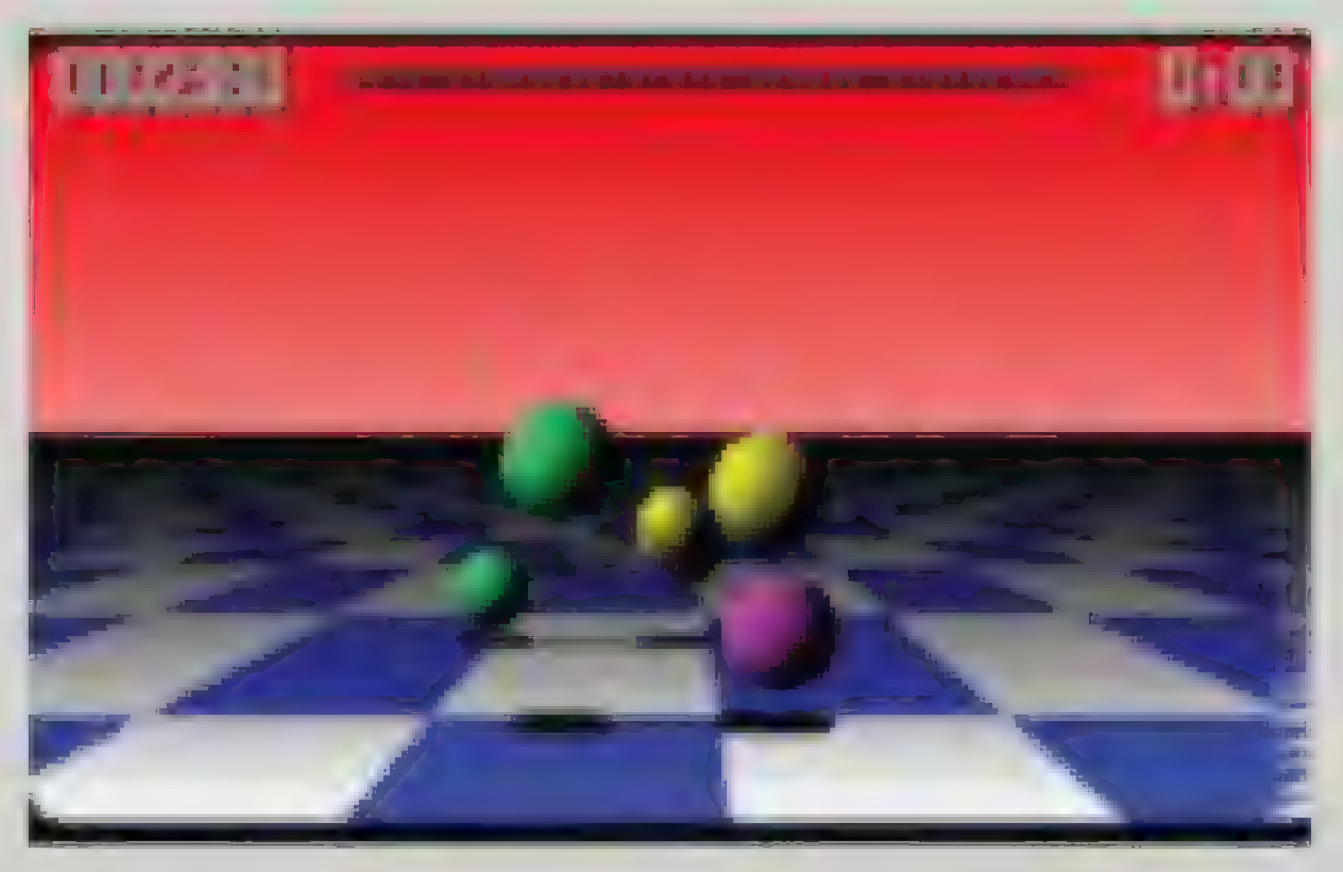
Eye

■ Based on a somewhat nonsensical board game from the Eighties, the US version of this title is becoming extremely collectable. Unsurprisingly, the board game – very much like this Amiga port – has since slipped into the mists of time, but dedicated Amiga fans will want to seek this out, especially if you're after something a little different.



Mind Walker

■ One of the earliest Amiga games, *Mind Walker* was released in 1986 – yet it remarkably remains compatible with almost all Amiga hardware variants. The unique visuals and out-there storyline make this an interesting release, and one well worth picking up – especially if you're serious about your Amiga history.



Vaxine

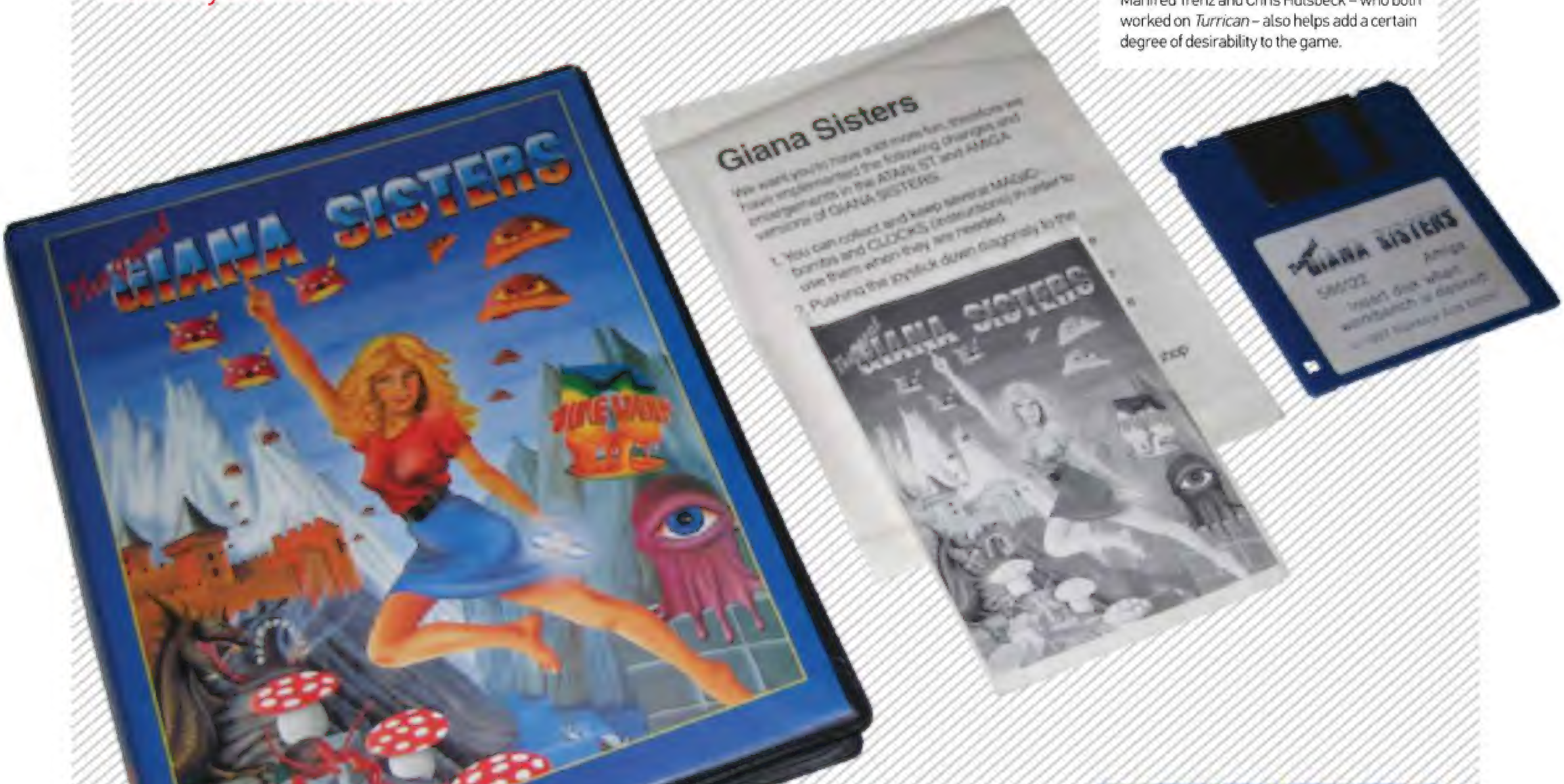
■ Like *Amiga Karate*, this is mainly popular with collectors due to its extremely interesting packaging – it was distributed in a round metal tin rather than the standard cardboard box. A trippy first-person shooter where the player attempts to repel a deadly virus, it's actually very playable, too, so be sure to seek it out.

THE JEWEL IN THE CROWN

If you're looking for a rare PAL Amiga game that feels genuinely unique, this is the item you should seek out for your collection

What makes it so special?

■ The story behind *The Great Giana Sisters* is the stuff of legend, but the involvement of Manfred Trenz and Chris Hülsbeck – who both worked on *Turrican* – also helps add a certain degree of desirability to the game.



What makes it hard to find?

■ What makes it so hard to find? The game is heavily influenced by Nintendo's *Super Mario Bros*, and was pulled from store shelves following legal pressure from Nintendo. As a result, not many copies made it into circulation. The are two variants of the Amiga version, the one shown here and a traditional big box.

Why should you play it?

■ Even if you ignore its back story, the game is fantastic fun. It's not quite up to the majesty of Nintendo's original platformer, but its quality is immediately obvious. Many platformers, particularly on the Amiga, failed to capture the magic of their console counterparts, but this wasn't the case with *The Great Giana Sisters*.

Why is it so expensive?

■ The game's fame and status as a *Mario* clone helps keep the price high. Because there are so few copies around, demand is always strong and when the game is up for sale on eBay, it always fetches an insane amount of money.

AMIGA 500 The Collector's Guide

☑ THE PAL AMIGA GAMES YOU NEED TO OWN

Agony

- ☐ A Mind Forever Voyaging
- ☐ A Prehistoric Tale
- ☐ Adventure Quest
- ☐ After Burner
- ☐ Alien Storm
- ☐ After The War
- ☐ Agony
- ☐ Akira
- ☐ Alien Breed
- ☐ Alien Drug Lords: The Chyropian Connection
- ☐ Apidya
- ☐ Arctic Fox
- ☐ Arkanoid
- ☐ Army Moves
- ☐ Artificial Dreams
- ☐ Aztec Warrior
- ☐ Batman: The Caped Crusader
- ☐ B.C. Kid
- ☐ Baron Baldric: A Grave Adventure
- ☐ Battle Chess
- ☐ Battle Squadron
- ☐ Battle Valley
- ☐ Beyond Zork
- ☐ Bionic Commando
- ☐ Bismarck
- ☐ Black Viper
- ☐ Blasteris
- ☐ Blazing Thunder
- ☐ Bloodnet
- ☐ BMX Simulator
- ☐ Body Blows
- ☐ Bombuzal
- ☐ Boomeraid
- ☐ Borrowed Time
- ☐ Brainbusters
- ☐ Brainstorm
- ☐ Brataccas
- ☐ Brian The Lion
- ☐ Brutal: Paws Of Fury
- ☐ Buck Rogers: Countdown To Doomsday
- ☐ Buggy Boy
- ☐ Cannon Fodder
- ☐ Captain Blood
- ☐ Carrier Command
- ☐ Castle Warrior
- ☐ Checkmate
- ☐ Chinese Chess
- ☐ Chip's Challenge
- ☐ Classic Invaders
- ☐ Cobra
- ☐ Coloris
- ☐ Commando
- ☐ Conan The Cimmerian
- ☐ Cool Croc Twins
- ☐ Corporate Raiders
- ☐ Cosmo Range
- ☐ Crystal Quest
- ☐ Cubit
- ☐ Cyber Cop
- ☐ D/Generation
- ☐ Darkseed
- ☐ Deep Space
- ☐ Defender Of The Crown
- ☐ Demon Blue
- ☐ Denaris
- ☐ Diggers
- ☐ Digital Dungeon
- ☐ DNA Warrior
- ☐ Dogs of War
- ☐ Dragon Lord
- ☐ Dream Zone
- ☐ Elf
- ☐ Elite
- ☐ Elvira: The Arcade Game
- ☐ Entity
- ☐ Escape From Colditz
- ☐ ESWAT: Cyber Police
- ☐ European Championship 1992
- ☐ Explora: Time Run
- ☐ Exxon
- ☐ Eye of the Beholder
- ☐ F-16 Combat Pilot
- ☐ Fields Of Glory
- ☐ Final Countdown
- ☐ Fire and Brimstone
- ☐ First Class With The Shoe People
- ☐ Flood
- ☐ Formula 1 3D
- ☐ Future Sport
- ☐ Garfield: Winter's Tale
- ☐ Gee Bee Air Rally
- ☐ Gem'X
- ☐ Genius
- ☐ Ghost Chaser
- ☐ Ghosts 'n Goblins
- ☐ Gladiators
- ☐ Goal! Championship Cup Edition
- ☐ Golden Axe
- ☐ Grand Slam: World Class Tennis
- ☐ Gravity Force
- ☐ Great Giana Sisters
- ☐ Gulp!
- ☐ Hacker
- ☐ Hard 'n' Heavy
- ☐ Hardball!
- ☐ Harrier Combat Simulator
- ☐ Hellfire Attack
- ☐ Heroquest
- ☐ Hot Rod
- ☐ Hotel Manager

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James Pond: Underwater Agent

- ☐ Hybris
- ☐ Ian Botham's Cricket
- ☐ Impossible Mission
- ☐ Iron Tracker
- ☐ James Pond: Underwater Agent
- ☐ Jewels of Darkness
- ☐ Jim Power
- ☐ Joe & Mac: Caveman Ninja
- ☐ Journey To The Centre Of The Earth
- ☐ Jungle Boy
- ☐ Katakis
- ☐ Kick Off 2
- ☐ Kwik Snax
- ☐ Lancelot
- ☐ Last Battle
- ☐ LED Storm
- ☐ Lemmings
- ☐ Lethal Xcess: Wings Of Death 2
- ☐ Libyans In Space
- ☐ Limes & Napoleon
- ☐ Loom
- ☐ Lords of War
- ☐ Mace
- ☐ Mega Twins
- ☐ Mewilo
- ☐ Microprose Soccer
- ☐ Midwinter
- ☐ Millennium 2.2
- ☐ Mitre Soccer Superstars
- ☐ Moonstone
- ☐ Mr. DO! Run Run
- ☐ Mr. HELI
- ☐ Murders In Space
- ☐ Narco Police
- ☐ Nathan Never: The Arcade Game
- ☐ Nigel Mansell's Grand Prix
- ☐ Night Dawn
- ☐ Ninja Mission
- ☐ No Exit
- ☐ Nobunaga's Ambition
- ☐ Operation Wolf
- ☐ OutRun (Sega version)
- ☐ Pacboy
- ☐ Panzer Kick Boxing
- ☐ Paperboy
- ☐ Phantom Fighter
- ☐ Pinball Prelude
- ☐ Pipe Dream
- ☐ Populous

EXTREMELY RARE Games that have less than a few dozen known copies available.

VERY RARE Very hard to come by. Expect to see only a couple of copies per year.

RARE You should be able to source these in a reasonable amount of time.

UNCOMMON You won't find them straight away, but you will after a search.

COMMON Always just a click away for the average collector.

VERY COMMON So common you'll find them in most bundles of games you buy.

Superfrog

- Ports of Call ☐
- Power Drift ☐
- Psyborg ☐
- Puffy's Saga ☐
- R-Typer ☐
- Rainbow Island ☐
- Rambo III ☐
- Recovery ☐
- Renegade ☐
- Return to Atlantis ☐
- Revenge Of The Mutant Camels II ☐
- Rick Dangerous ☐
- Rise Of The Robots ☐
- Roadwar 2000 ☐
- Romance Of The Three Kingdoms ☐
- Rules Of Engagement ☐
- S.T.U.N. Runner ☐
- Sanctuary ☐
- Satan ☐
- Savage ☐
- Scramble Spirits ☐
- Seven Cities Of Gold ☐
- Silkworm ☐
- Side Arms: Hyper Dyne ☐
- Sim City ☐
- Ski or Die ☐
- Sky Fighter ☐
- Skyfox ☐
- Slackskin & Flint ☐
- Sly Spy: Secret Agent ☐
- Snoopy and Peanuts ☐
- Soccer Mania ☐
- Soccer Superstars ☐
- Space Harrier (US Gold) ☐
- Space Crusade ☐
- Space Ranger ☐
- Space School Simulator: The Academy ☐
- Speed Buggy ☐
- Spinworld ☐
- Spot ☐
- Spuk ☐
- Spy vs. Spy ☐
- Stormball ☐
- Star Wars: Return Of The Jedi ☐
- Street Gang ☐
- Strider ☐
- Strike Force Harrier ☐
- Strip Fighter ☐
- Strip Pot ☐

- Suicide Mission ☐
- Summer Challenge ☐
- Super C ☐
- Super Loopz ☐
- Super Wonder Boy ☐
- Superfrog ☐
- Table Tennis Simulation ☐
- Team Yankee ☐
- Teenage Mutant Hero Turtles: The Coin-Op ☐
- Terry's Big Adventure ☐
- The Chaos Engine 2 ☐
- The Chessmaster 2000 ☐
- The Deep ☐
- The Flintstones ☐
- The King Of Chicago ☐
- The Last Inca ☐
- The Lurking Horror ☐
- The Magic Garden ☐
- The Man From The Council ☐
- The Simpsons: Bart Vs The Space Mutants ☐
- Theme Park ☐
- Thexder ☐
- Time And Magik: The Trilogy ☐
- Tom & Jerry 2 ☐
- Top Of The League ☐
- Traps 'n' Treasures ☐
- Tron 5000 ☐
- Turbo OutRun ☐
- Twin World ☐
- Twintris ☐
- UFO: Enemy Unknown ☐
- Ultima VI: The False Prophet ☐
- Victory Road: The Pathway to Fear ☐
- Video Vegas ☐
- Viz: The Computer Game ☐
- Vortex ☐
- War In Middle Earth ☐
- War Machine ☐
- Wargame Construction Set ☐
- Weird Dreams ☐
- Wing Commander ☐
- Worms ☐
- X-COM: UFO Defense ☐
- Xenon ☐
- Zool ☐

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BAZOOKA
WORMS

Worms

Collector Q&A

We speak to Graham Humphrey about his impressive collection

■ So Graham, can you tell us what attracted you to start collecting for the Amiga?
I've always owned an Amiga of one description or another since I was very young so I'm not sure I ever consciously chose to get involved with it. It's just always been there. I've owned all manner of machines since first getting one but there has never been a time when the Amiga wasn't set up and being used too.

■ You have a lot of different Amiga systems. What would you say is your most treasured piece in your collection and why?
Without a doubt it has to be my A1200. It's permanently set up and has been for many years now. I must have bought it a decade or so ago for about £40 and it's fair to say I've had good value for money out of it. It is also a very expandable machine so adding an accelerator, hard drive and CD-ROM drive has prolonged its life immeasurably. Away from the hardware I also have quite a large collection of magazines, including many copies of *Amiga Power* and *Amiga Format*, which are still an invaluable reference and an entertaining read even now.

■ What's the most cash you've spent on any single piece of Amiga hardware or software? Any expensive horror stories?
I've been quite lucky really as most of the stuff I own I've managed to get for a decent price. For instance, I bought my accelerator (which contains a 68040 processor, substantially quicker and more powerful than the A1200's standard 68020, and 32MB RAM) for around £75 seven years ago and it's still going strong today. You often have to go into three figures to get a card that's inferior to that one. I even managed to get my CD-ROM drive plus the Squirrel SCSI interface (which plugs into the PCMCIA port) for £50 or thereabouts. I don't think I've ever spent more on one item than these two.

■ You've been amassing your collection for quite a while now. Is there any item you'd still like to own but haven't been able to get?
I must admit there are a few things I'd like but space and time is an issue more than money – I much prefer buying things that I'll actually use rather than to just store away so if I've got nowhere to put it or I'm occupied by other things it's not really worth it. Which is a shame as I'd quite like to get a towered and vastly beefed-up A1200 or A4000, just for the sheer hell of it more than anything. I think it would be really fun to use and to have all the expansions and drives tucked away in its case is much more tidy and attractive than my current arrangement, with wires pretty much covering my desk.

■ Before you go Graham, what final advice would you give to any potential collectors of the Amiga? What should our readers be looking out for?
The Amiga has an impressively diverse range of hardware and software and you've got no hope of owning it all so before splashing out, think about what you want an Amiga for. If you want to relive the days of playing games from floppy, buy an A500 and get yourself a decent stack of boxed games; most of them are reasonably common and go fairly cheap (and besides, nice big box Amiga games look great on a shelf). If you like to mess around with hardware and are curious about how it all works and how far you can push it, get a later, more expandable model and be prepared to spend a lot of cash on add-ons. This will also enable you to use the late-era CD-ROM based games and applications.

*** Special thanks to Carlo Pirri and Michael Mayerhofer for their photography assistance and the always helpful Hall of Light**

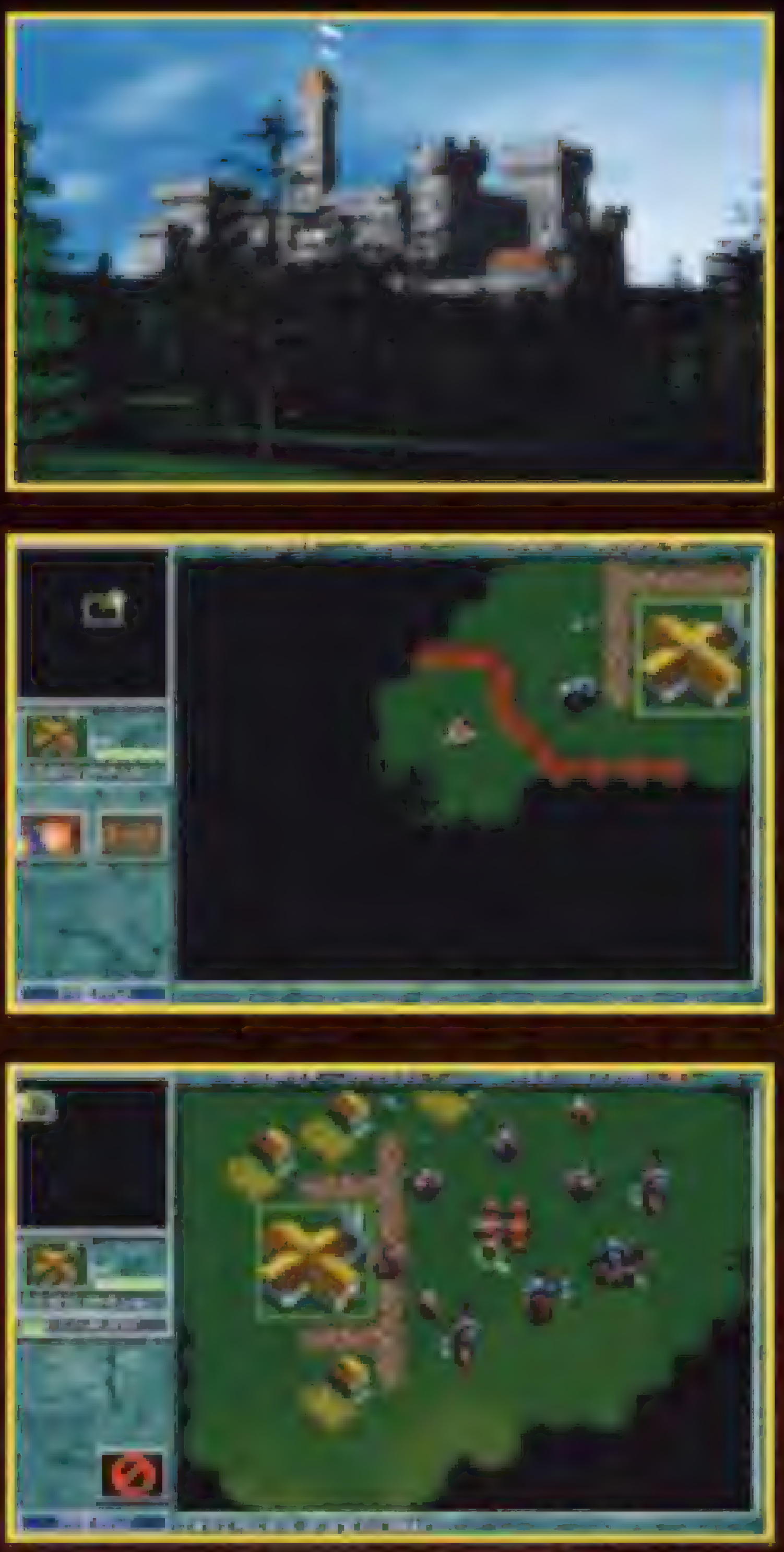
THE MAKING OF

WARCRAFT ORCS & HUMANS

Join Graeme Mason as he talks to former Blizzard designer and coder Patrick Wyatt and discovers the game that helped influence the entire real-time strategy genre, as well as inspire the most successful MMORPG of all time. Beware, the humans draw near…

Mention the name *Warcraft* today and most people will immediately think of *World Of Warcraft*, the incredibly successful MMORPG that has dominated the genre since 2004. Yet the story of *Warcraft* began over ten years earlier with an embryonic company named Silicon and Synapse, who would soon transform into the more commonly-known Blizzard Entertainment. The company's founders were Allen Adham and Michael Morhaime. "I knew Mike from an engineering fraternity at UCLA," begins Patrick, "and he invited me down to offer me a contract role converting the DOS/ Amiga game *Battle Chess* to Windows 3." Patrick worked on this conversion from February until June 1991 before graduating from university and beginning full-time employment at Silicon and Synapse later that year.

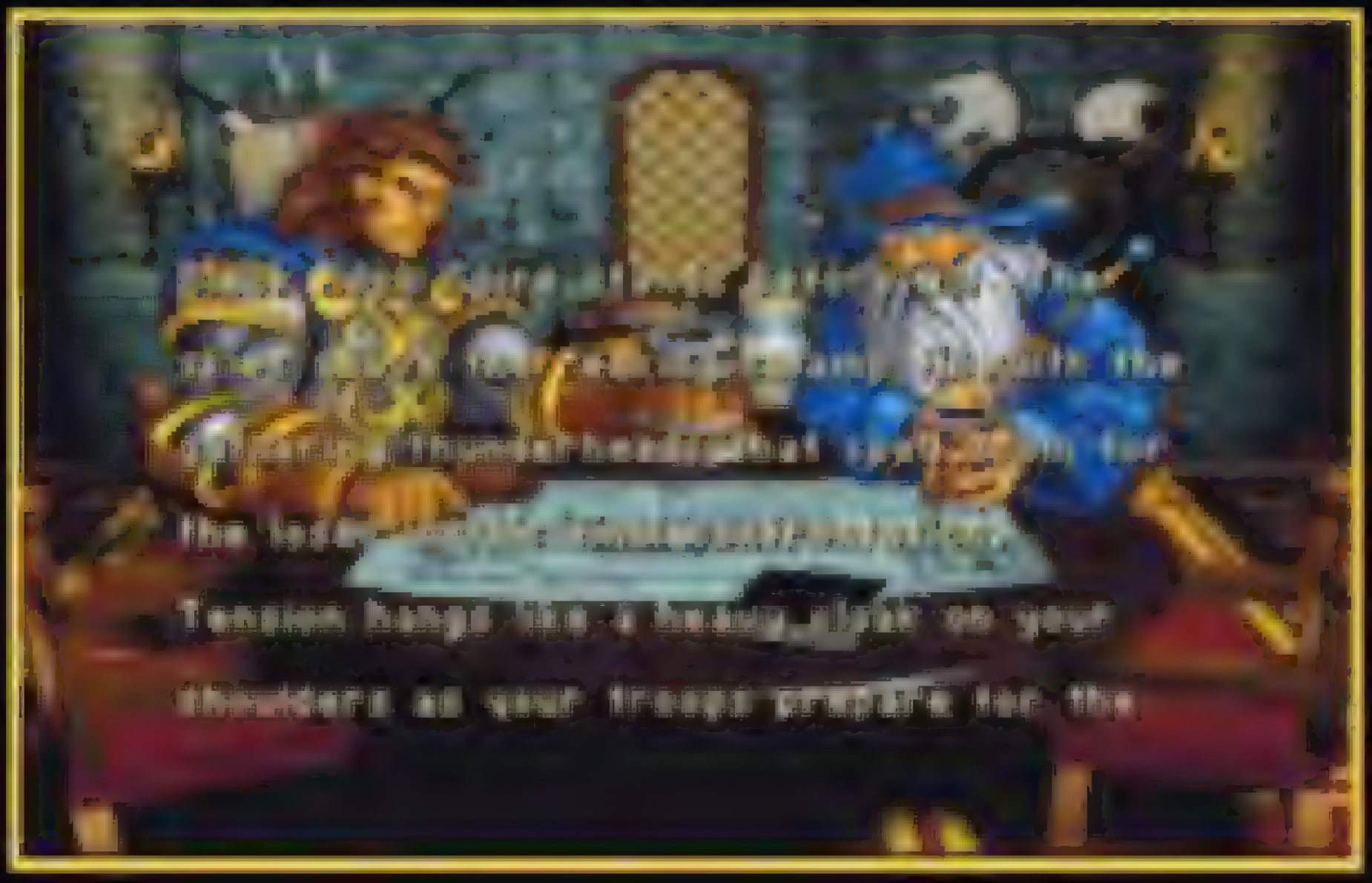
Patrick was soon busy on various SNES projects such as *The Lost Vikings* and *Rock 'n' Roll Racing*. However, despite good critical reception, they weren't big sellers, resulting in a focus on PC products. "One day in September 1993, Allen came up to me and told me to take over a new project called *Warcraft* as producer and programming lead," recalls Patrick and there was little doubt of the main source of inspiration for the game. Many of the Silicon team had become addicted to the iconic Westwood game, *Dune 2*, discussing almost every day the various tactics and styles that could be used. "It wasn't so much a gap in the market, as an opportunity," he smiles, "as it was obvious to us that *Dune 2*, despite our fondness for it, had weaknesses. We thought we could create something special if we improved upon the design." The first major change was the setting – "We all loved fantasy and Tolkien was a major inspiration" – and Patrick also confirms that a *Warhammer* licence was considered. "It was certainly discussed. Allen was keen on it



» [PC] A commander's first task was usually training up the peasants to do the dirty work.

IN THE KNOW

- » **PUBLISHER:** INTERPLAY
- » **DEVELOPER:** BLIZZARD ENTERTAINMENT
- » **RELEASED:** 1994
- » **PLATFORM:** PC, MAC
- » **GENRE:** REAL-TIME STRATEGY



▪ [PC] Planning the Orcs' demise.

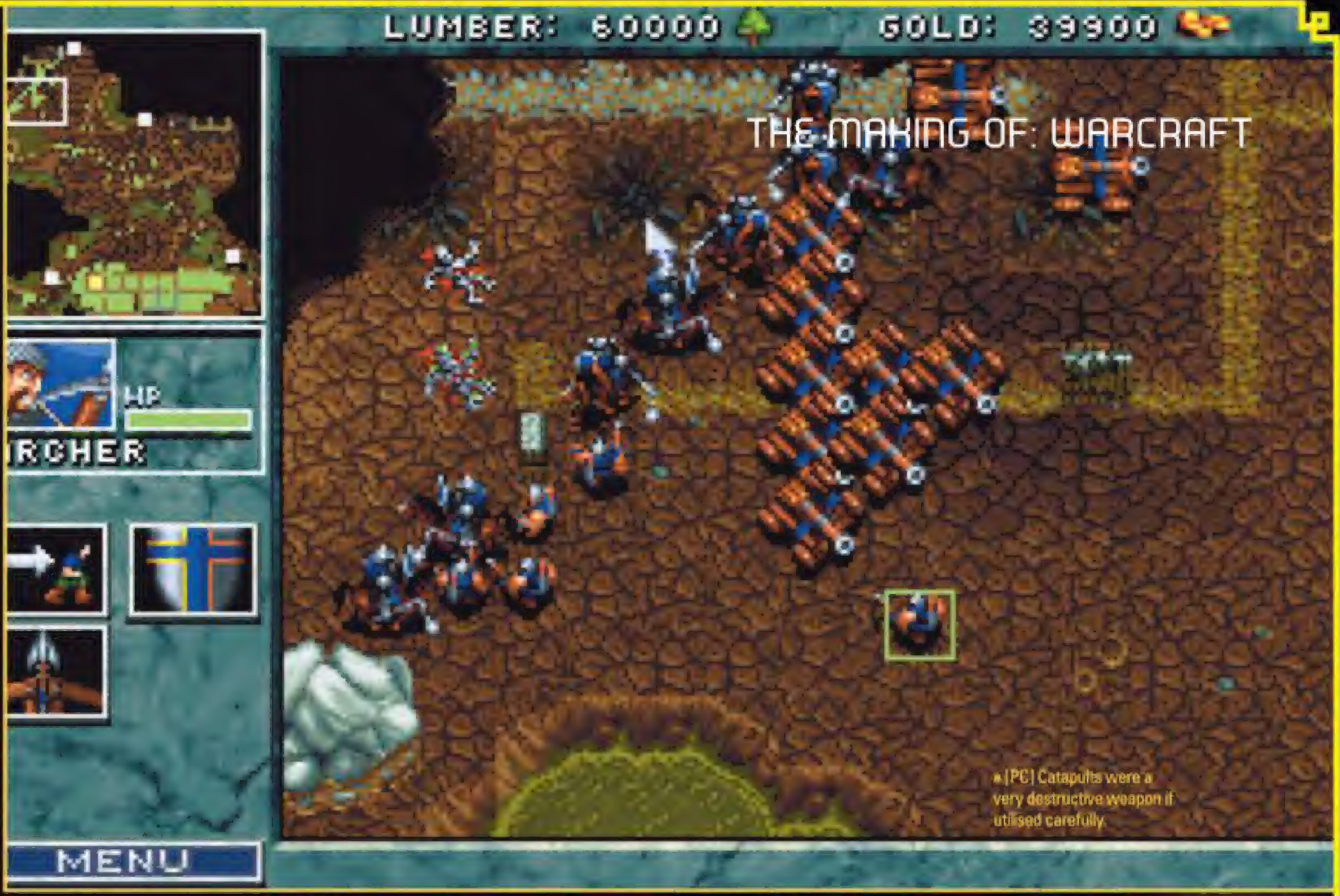
to try and increase sales and gain brand recognition but as far as I was concerned, I was pleased when nothing came of it. We wanted to create and control our own universe, although *Warhammer* became a big influence in the art style of *Warcraft*."

Patrick and the team began to tweak the design of *Warcraft* with changes borne of their extensive play-testing of *Dune 2*. In came two-player LAN and Modem play, multiple-unit selection and upgradeable resources. As a result, one of *Dune 2*'s most controversial elements that ultimately remained in *Warcraft* was the controlled town expansion – construction could only take place next to roads laid by the player – which was chiefly implemented to avoid the player constructing "stealth" towns next to an opponent's base. "I think in retrospect that was a bad decision. We argued about it a lot at the time and it stayed in; but it was one of the first things we eliminated when it came to *Warcraft 2*."

Your will, sire?

"The process of creating *Warcraft* was very organic," continues Patrick, "and to start off with was mostly me writing code as fast as I could for several months." When the game began to form, Blizzard brought in Ron Millar to head up the design, a small team of programmers to assist Patrick with coding and graphics and the storyline was devised. However, a divergence in the direction of the gameplay was soon appearing; *Warcraft* was turning into something quite different from the series we know and love today.

"Initially Ron led the design away from *Dune 2* and towards games such as *Populous*. For example, peasants weren't going to be "built", but would instead pop out of farms after a while. It didn't feel right to many of us," says Patrick. This type of unit creation limited the player's control; each peasant could be converted into another unit, yet there was no direct influence over quantity or timing. The gameplay was planned but never implemented and this was mainly down to graphics artist and designer Stu Rose, as Patrick explains. "While Allen and Ron were off at CES in Chicago, Stu made some proposals about how the game should work, essentially making it simpler to play and closer to *Dune 2* again." The remaining team discussed the ideas and agreed they would make for a much better playing experience. Patrick implemented the changes as quickly as possible to present to Adham and Millar on their return. When they saw what had become of *Warcraft*, they reluctantly agreed the alterations were for the best – much to the team's relief.



▪ [PC] Catapults were a very destructive weapon if utilised carefully.

> It was obvious to us that Dune 2, despite our fondness for it, had weaknesses
> PATRICK WYATT

Stop poking meeee!

Patrick confirms one of *Warcraft*'s principal design tenets: simplicity. "Many games were just too hard to play because they required detailed interaction with the user interface," he explains, "so our goal was always to create a game where the interface just got out of the way of the gameplay." One of the elements the team quickly learned during development was ▶

▪ [PC] Some scenarios, such as this underground rescue mission, varied the gameplay.

▪ [PC] A useful statistical summation page concluded each successful mission.

STU ROSE ON DESIGNING WARCRAFT

"I had just finished the animation, artwork and user interface for a SNES game called *Blackthorne* when I was called onto *Warcraft*," recalls former Blizzard artist Stu Rose, "and was handed the task of creating the basic outline of what buildings there should be and the underlying design for the game." Eventually Stu took Ron Millar's scenario designs and constructed a map that fit logically according to position and placement. "At the same time I was hounding Mike [Morhaime] to hire a friend of mine – Bill Roper," he continues. Together with Glenn Stafford, Bill used his background in music and singing to create the distinctive *Warcraft* voice and music. "Recording was all done in Glenn's office during the quieter times of the day. It was great fun saying "Yesh, my lord!" into a microphone so many times that the words started to lose their meaning!"

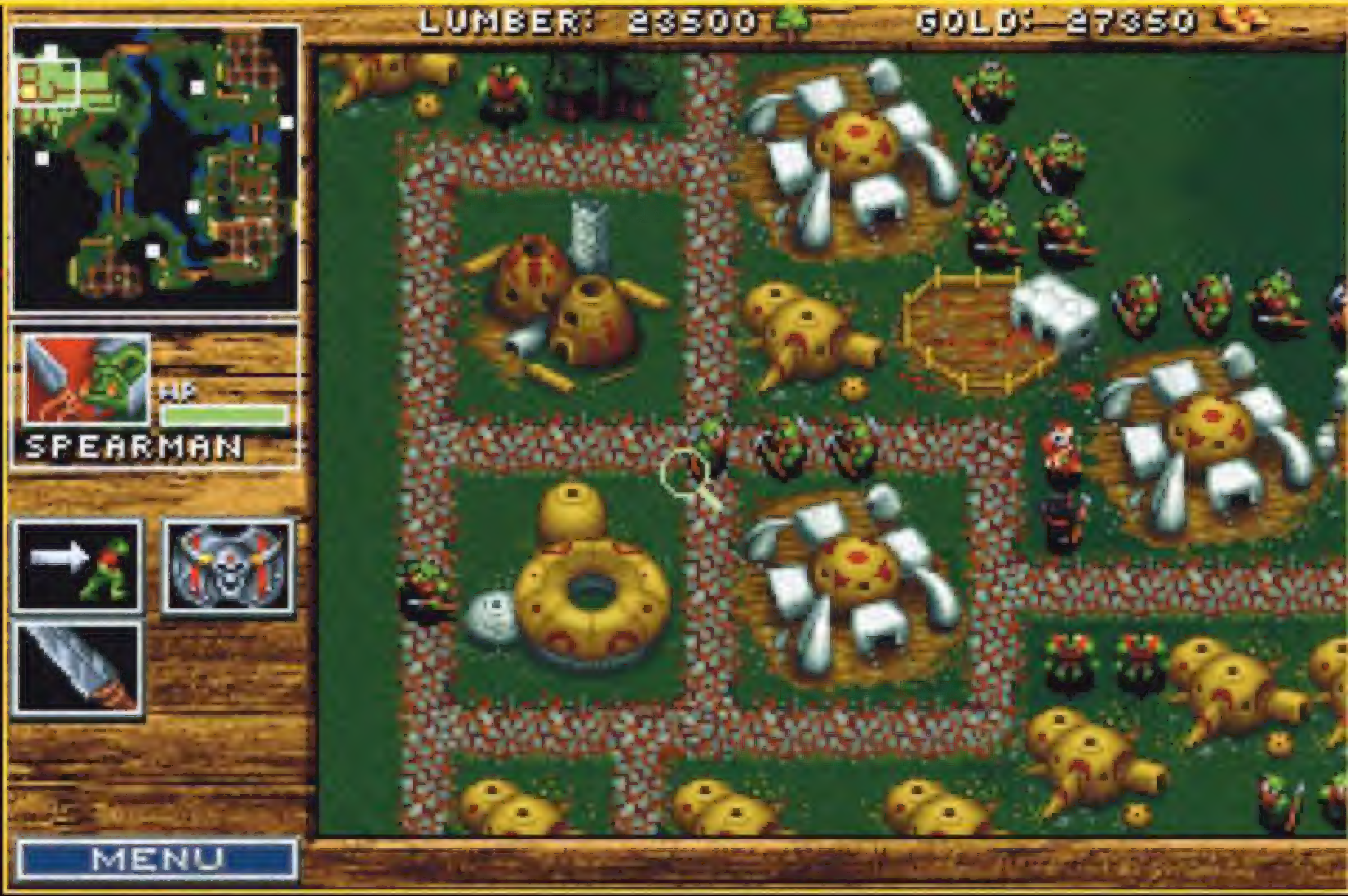
THE MAKING OF

DEVELOPER HIGHLIGHTS

ROCK N' ROLL RACING
SYSTEM: SNES, MEGA DRIVE, GBA
YEAR: 1993

BLACKTHORNE
SYSTEM: SNES, 32X, PC, GBA, MAC
YEAR: 1994

DIABLO III (PICTURED)
SYSTEM: PC, MAC
YEAR: 2012



▶ the use of hot-keys; it was evident that in a real-time battle, players needed to give actions to their units commands quickly and easily, given the unit control limit.

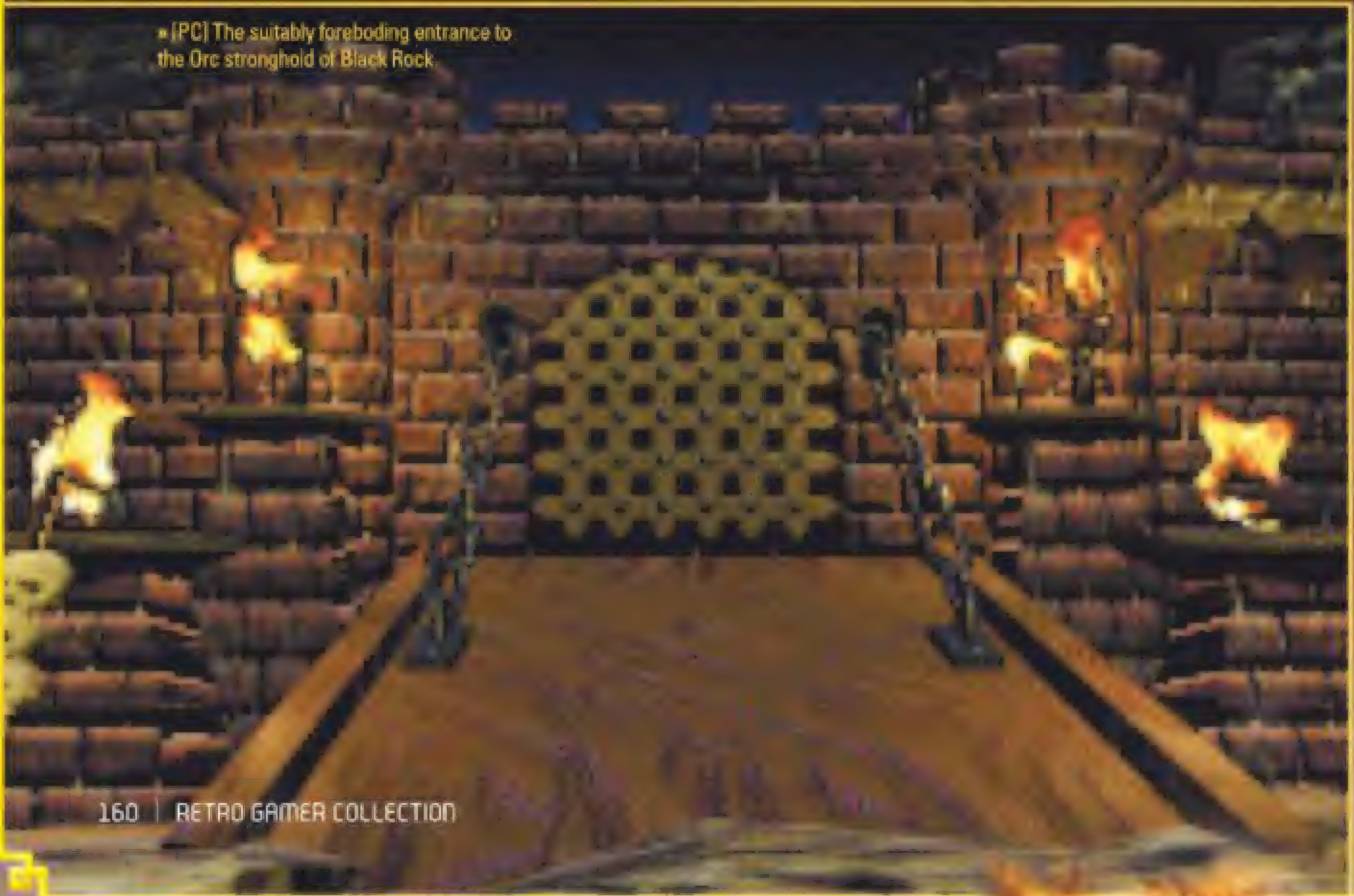
It seems odd looking back today that you can only select up to four units at once in *Warcraft*, yet this method sidesteps one of the criticisms of Westwood's *Command And Conquer* series where no such restriction existed. "Allen Adham was the chief proponent of the four-unit selection limit," reveals Patrick, "and whilst we didn't all see eye to eye on it, we realised it had merits." The limit served several purposes, most importantly making the game more tactical by eliminating "tank-rush" tactics and forcing the player to concentrate more on the meat and bones of the game: combat. "If you had played *Warcraft* back in 1993, you'd have been able to drag-select as many units as you like," discloses Patrick, "and although it was a really useful way to determine my path-finding and unit formation code – select fifty units and tell them all to go to the other side of the map and watch the unfolding chaos of a traffic jam – I thought the limit was the correct decision at the time." Whilst Patrick's subsequent code tinkering and the four-unit selection solved the traffic jam issues, he concedes in retrospect that perhaps four units was too low; the limit was raised to nine for *Warcraft 2*.

> The game was so close to shipping without multiplayer but we got it in the end and shipped just two weeks late
> PATRICK WYATT

Lok'tar

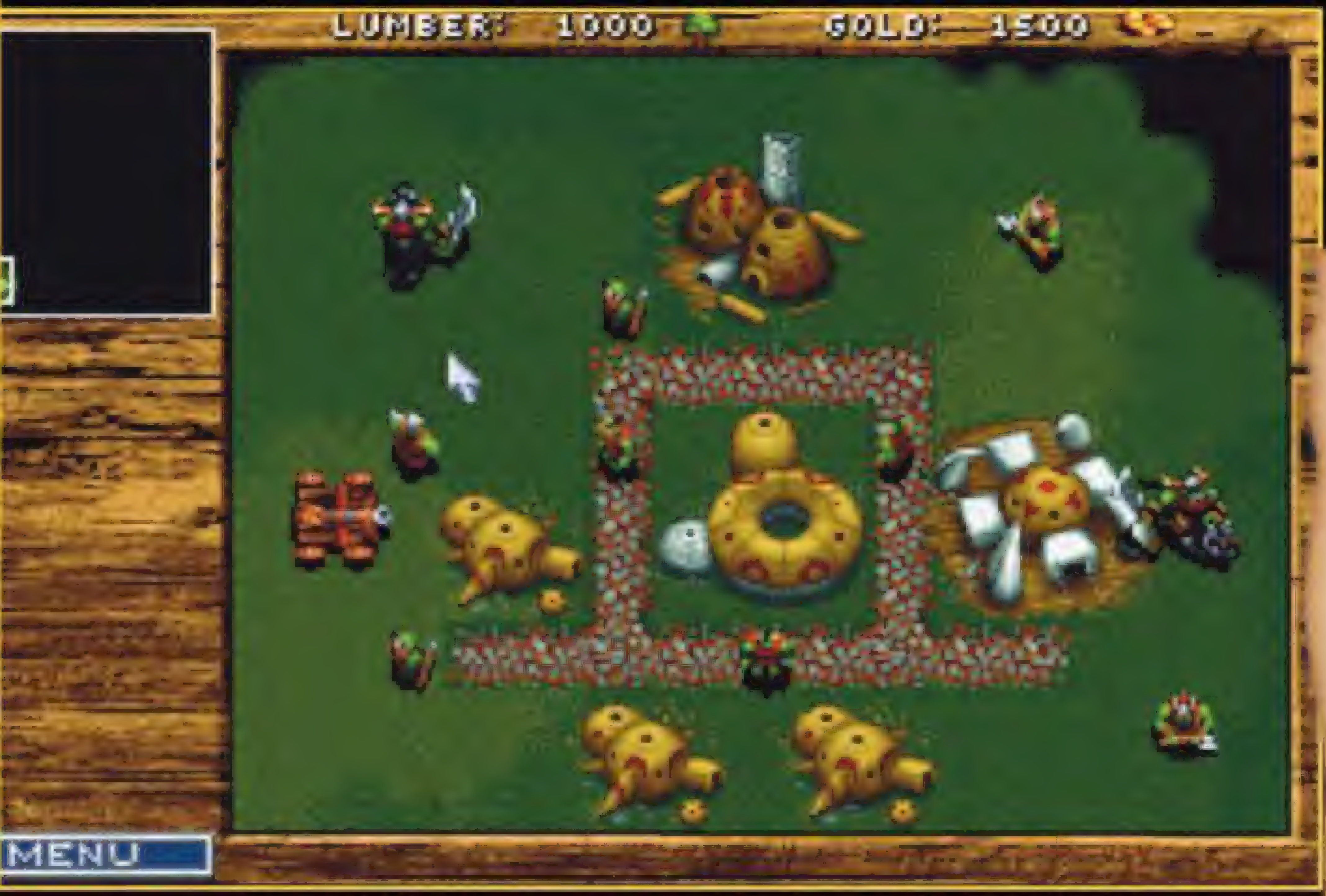
It wasn't just the design that caused the development of *Warcraft* to stumble; there were several technical issues too. "We were very keen on multiplayer play and our biggest challenge was debugging the multiplayer sync errors," frowns Patrick. These bugs occurred when the data between each game did not correspond correctly, usually resulting in the game crashing. "The very first multiplayer game was between myself and fellow coder Bob Fitch. It was a bittersweet moment: playing that first game was the most brilliant experience, because it was the game I was writing and I knew there was another tactically adept player controlling the other side." Unfortunately Patrick's joy was short-lived; a "desync" soon struck followed by an abrupt crash leading them to realise that creating a smooth multiplayer *Warcraft* experience was going to be much tougher than they had originally envisioned.

"We discovered many sync bugs, and at one point it was so bad that Allen said we had to drop multiplayer, release a single player game and then add the multiplayer later." Still passionate about its inclusion, the team fought for it to be re-instated and Patrick still firmly believes that if multiplayer had been dropped from the original *Warcraft*, Blizzard would not be the company it is today. "There was a period of several months where I tracked one specific bug. The game was so close to shipping


» [PC] The suitably foreboding entrance to the Orc stronghold of Black Rock

LUMBER: 60000
GOLD: 39500
Save
Continue
MENU

You are victorious!



» [PC] Each race had equivalent types of building.

without multiplayer but we got it in the end and shipped just two weeks late." he remembers. Other issues were slowly ironed out and relatively minor compared to the dreaded sync bugs.

By this stage, *Warcraft* already boasted its distinctive bright and cheerful graphics that belied the frequent bloody battles. "There were lots of companies that were going for the gritty look in their games, but I think our artists' experience with making characters "read well" for the early console games we developed really had a big impact here. Sam Didier led the art and had a style that was so engaging, everyone who saw it loved it," explains Patrick. Blizzard's artists worked under a policy that all artwork had to be drawn under fluorescent lights rather than dark rooms, with the theory being that as it was the worst possible light, the artwork would look better in any other light.

Consequently, *Warcraft*'s artwork and graphics had to be bright and colourful to stand out against these harsh conditions and the game's humour went hand-in-hand with this style says Patrick. "We tried to use humour effectively in all our games, because it's another aspect of entertainment. We felt too many games took themselves too seriously whilst we just wanted to entertain people."

Heh heh heh...

Towards the end of the development of *Warcraft*, an important member was added to the team. Bill Roper joined ostensibly to back-fill the Orcs versus humans storyline and ultimately lent his charismatic talents to one of the most memorable features of the game. "Along with guys who laid down the foundation with the artwork, Bill did a fantastic job creating the voice-tracks to *Warcraft*," says Patrick proudly, "and the many humorous one-liners that gave the game its personality." With Bill also helping to design the game's manual, *Warcraft* was beginning to take shape very nicely with Patrick and the team still seemingly unaware of a notable rival that was also being developed at the same time. "It wasn't until we met up with the Westwood folks at trade shows after the release of *Warcraft* that we began to learn what it'd been up to with its follow up to *Dune 2 – Command And Conquer*. My impression was they weren't exactly happy over it; but I reckoned they should have been pleased that we'd taken their great game as a base for ours."

Work Complete

On release, *Warcraft* was a big success and a sleeper hit. Did this surprise Blizzard? "Well, yes and no," says Patrick, "We knew it would be successful because, hell, it was addictive! When we shipped the gold master discs, everyone just kept playing the game and no-one would go home! But our idea of success was selling 200k units, so I guess we were surprised, as although the game didn't take off straight away, it was a consistent seller; word of mouth meant we sold 400,000 units in around a year – which we thought was awesome."

We conclude by asking Patrick how he sees *Warcraft*'s significance today. "Blizzard is the company it is today because of the things we did all the way back in 1992. We made mistakes, but learned from them. We argued a lot internally, but came up with the best solutions to hard problems. And from those beginnings we built a company where we knew all the right answers, answers that were right for the players which led to the vast popularity of our games in later years. And *Warcraft* was there, practically from the start."

Our thanks to Patrick Wyatt and Stu Rose.

THE WORLDS OF WARCRAFT

WARCRAFT: ORCS & HUMANS (1994)

Inspired by *Dune 2*, this is where it really began for Blizzard. When Orcish Warlocks discover a rift between their world and the Kingdom of Azeroth, they soon begin transporting warriors to plunder the human lands. Using the resources of the land (timber and gold), it is the player's duty to fend off attackers and destroy the enemy.

WARCRAFT 2: TIDES OF DARKNESS (1995)

For *Warcraft's* much-anticipated sequel, the Blizzard team set about ironing out all the self-admitted flaws from the first game including, most significantly, increasing the number of units the player could select, the addition of hero characters and a re-forming fog of war. Multiplayer was also improved as well, with up to eight players online.

WARCRAFT 2: BEYOND THE DARK PORTAL (1996)

The hero units from *Warcraft 2* were enhanced for this expansion with specific portraits and speech as well as abilities. Also included were two brand new campaigns and a host of additional multiplayer maps. The plot follows on from the main game as the humans attempt to seal the rift between Azeroth and the Orc's homeland, Draenor.

WARCRAFT 3: REIGN OF CHAOS (2002)

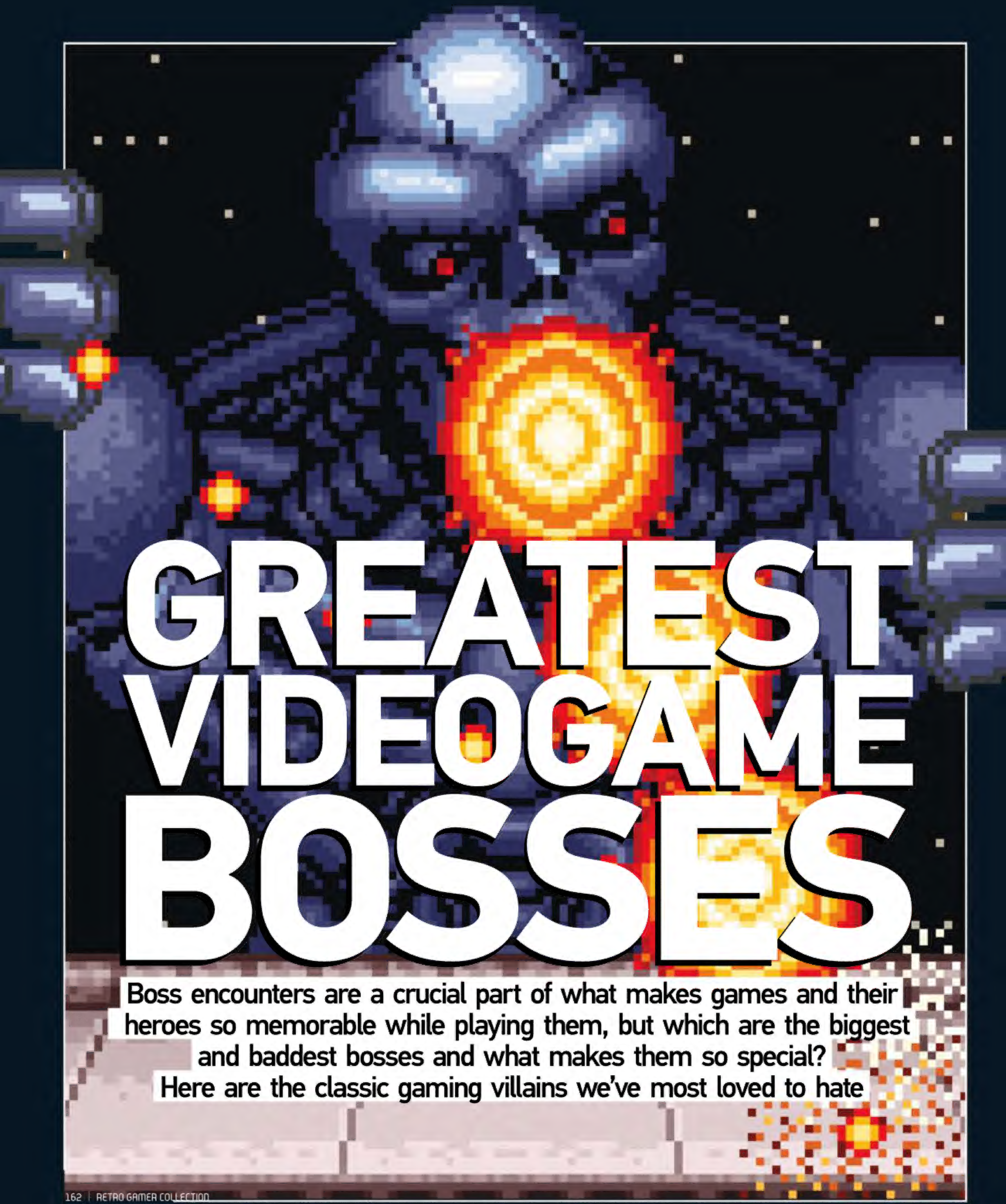
Also known as the forgotten *Warcraft* game. This second sequel had the misfortune to be released just before the phenomenon of *World Of Warcraft*, and as a result got a fraction of the publicity. Which is a shame, as it introduced two more playable races (Night Elves and the Insidious Undead), experienced units, and a map editor.

WARCRAFT 3: THE FROZEN THRONE (2003)

The official expansion for *Warcraft 3* added a new realm (Northrend), four new campaigns, a host of new characters to control and – making a welcome return from *Warcraft 2* – naval units. Mix in neutral heroes and two more auxiliary races (controllable, but they don't have their own campaign) and you had an expansion that was excellent value.

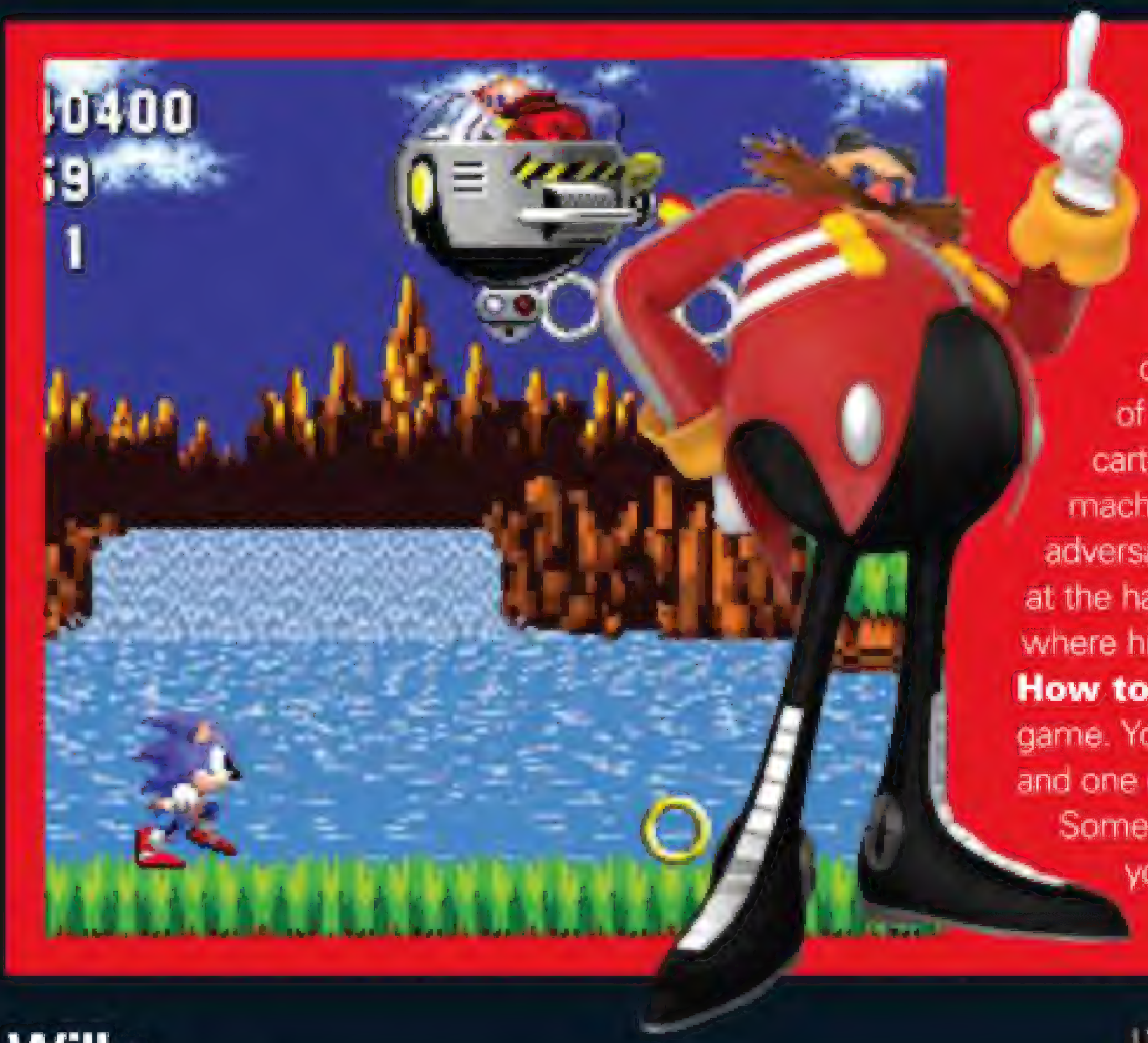
WORLD OF WARCRAFT (2004)

Without doubt the most successful MMORPG of all time, *WoW* continues to prove popular today, almost ten years after its original release. *WoW*'s key attribute is a simplicity that allows casual players to become slowly drawn into the complex *Warcraft* world, and at its peak in 2008 the game enjoyed a reported 12 million subscribers.



GREATEST VIDEOGAME BOSSES

Boss encounters are a crucial part of what makes games and their heroes so memorable while playing them, but which are the biggest and baddest bosses and what makes them so special? Here are the classic gaming villains we've most loved to hate



Doctor Robotnik

From: *Sonic The Hedgehog*

Aliases: Doctor Eggman, Eggman, Doctor Ivo Robotnik

His look is said to have been based on Theodore Roosevelt, but in terms of his character Robotnik is gaming's equivalent of the coyote from the *Road Runner* cartoons. He's a hapless lunatic that builds machines designed to get the better of a quicker adversary. Often forced to wear egg on his face at the hands of Sega's blue mascot, maybe that's where his Japanese name comes from.

How to beat it: Well it varies from game to game. You generally get to face off against Robotnik and one of his contraptions at the end of each act. Some obvious general advice then – make sure you have a lot of rings, and try your best to keep hold of them.

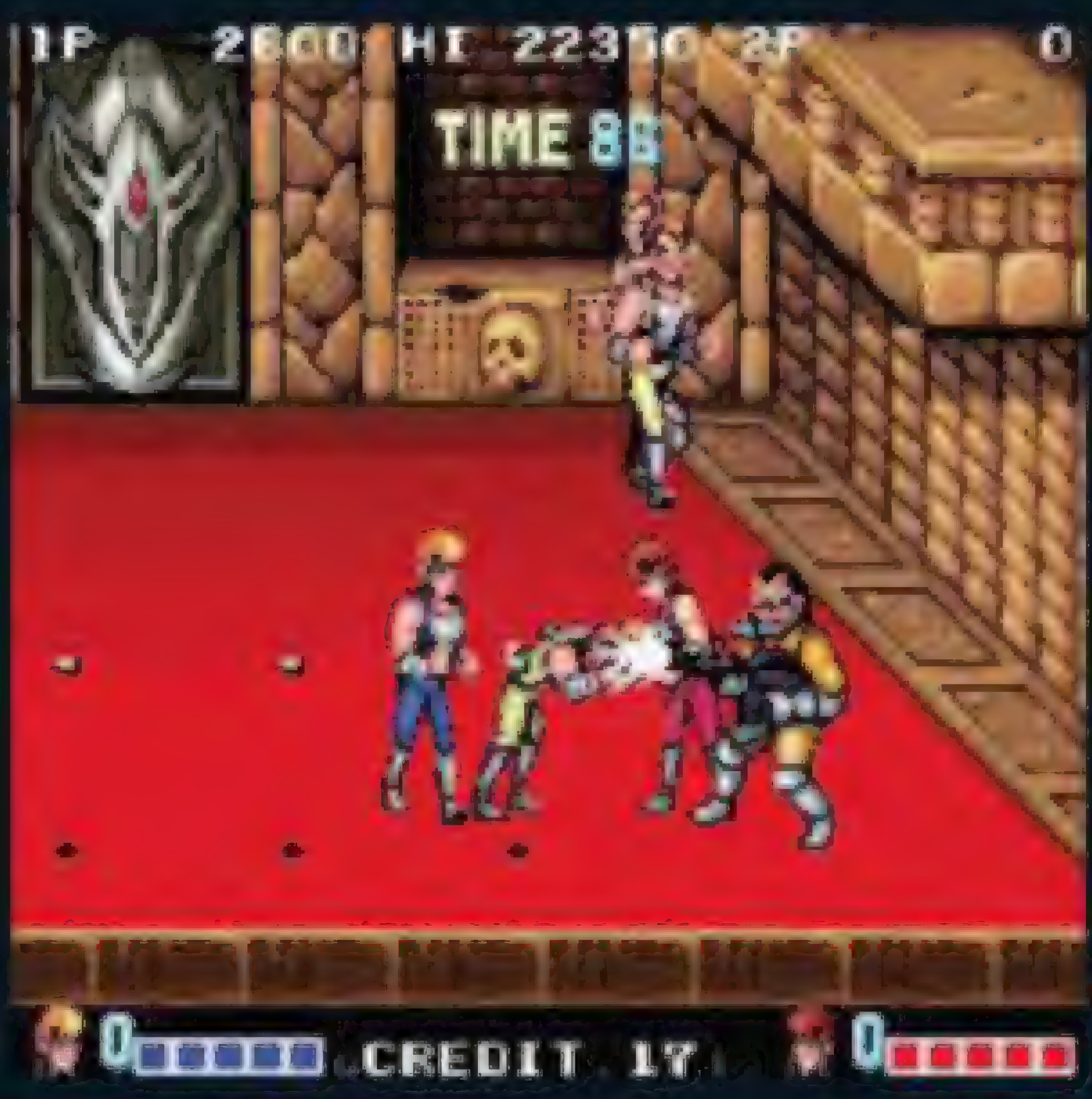
Willy

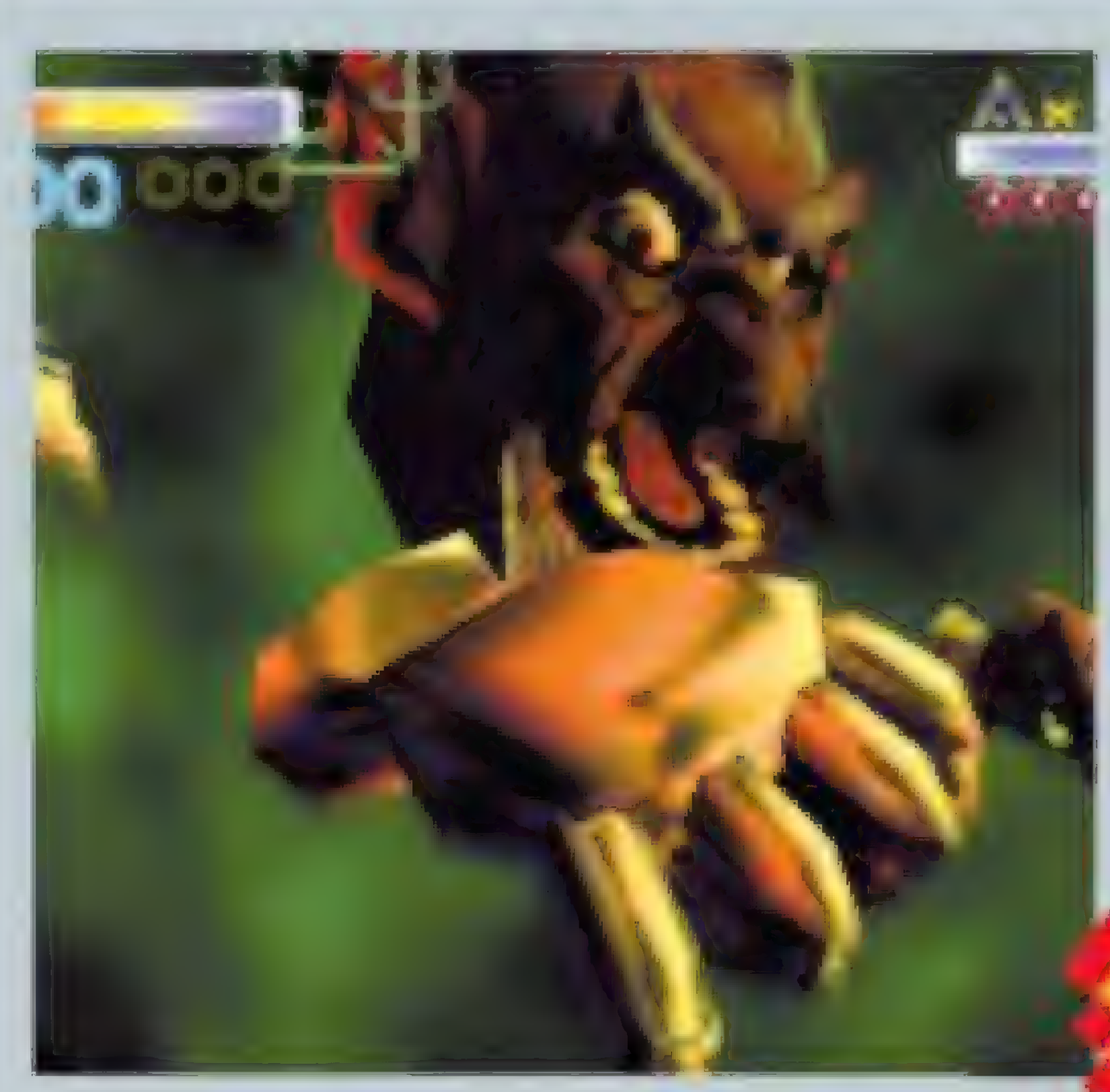
From: *Double Dragon*

Aliases: Machine Gun Willy, Big Boss Willy

Willy sets out his villainous stall brilliantly at the start of *Double Dragon* by turning up on the Lee brothers' turf with his gang, giving the order to sock their girlfriend in the breadbasket and carrying her off to their hideout. Not only is it one of the most iconic openings in videogames, but also all the motivation and characterisation you needed to set forth, rescue her and stick Willy's machine gun where the sun don't shine.

How to beat it: Well, you could exploit the balcony glitch, though this can be more time consuming, or you could just grab the baseball bat, and use it to take down as many of his gang members before Willy arrives on the scene. Then pummel him with close attacks so that his trigger finger hardly touches his gun.





Andross

From: *Star Fox*

The first incarnation of Andross is further proof that a large disembodied head with an insatiable appetite will cause both undergarment ruining and chord striking among gamers. Like a cross between Williams' *Sinistar* and the creepy robot head from Atari's *I, Robot*, Andross gives a memorable fight that provides both an epic and challenging close to this SNES classic.

How to beat it: Attack his glowing eyes, keep the Arwing moving from left to right and barrel roll when he spits out those metal tiles. Do this until the face shatters and Andross's true form – a monkey face in a cube – is revealed, and then focus your fire on that. Repeat the process and that's usually enough to send him on his way.

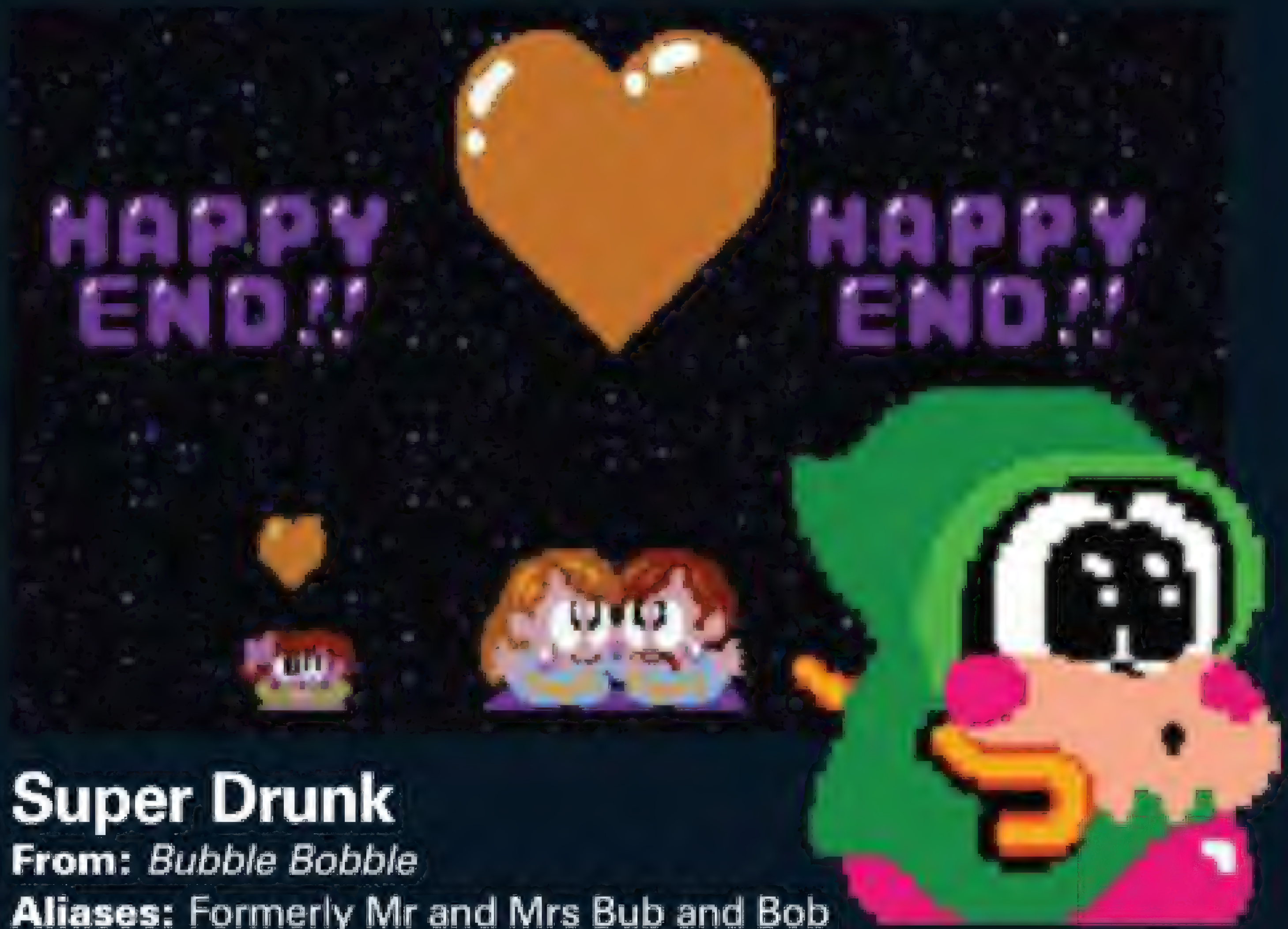
Nemesis

From: *Resident Evil 3: Nemesis*

Nothing is scarier than an enemy that just doesn't know when to quit, one that, to quote Kyle Reese from *Terminator*, 'can't be bargained with. It can't be reasoned with. It doesn't feel pity, or remorse, or fear. And it absolutely will not stop, ever, until you are dead.' Well, this is exactly the type of enemy that players came face to face with in *Resident Evil 3: Nemesis*. The titular boss is a creation by series' bad guys the Umbrella Corporation and was designed with the sole intention of basically hunting and eradicating S.T.A.R.S members.

Players' first contact with the creature saw him killing off helicopter pilot Brad Vickers before turning his attention towards them, Jill Valentine. The cat and mouse horror adventure that follows sees Jill and Nemesis cross paths at various points in the story (sometimes mandatory, other encounters based on player choices), and Jill throwing everything at the thing in a desperate bid to stop it.

How to beat it: The trick to defeating the final 'mutated' Nemesis is to keep your distance and use your most powerful weapons (Grenade Launcher and Magnum) against him. You can only defeat the Nemesis by activating the Rail Gun, and this is done by connecting up three batteries to power it. Two blasts of the weapon and job's a goodun. Or is it?



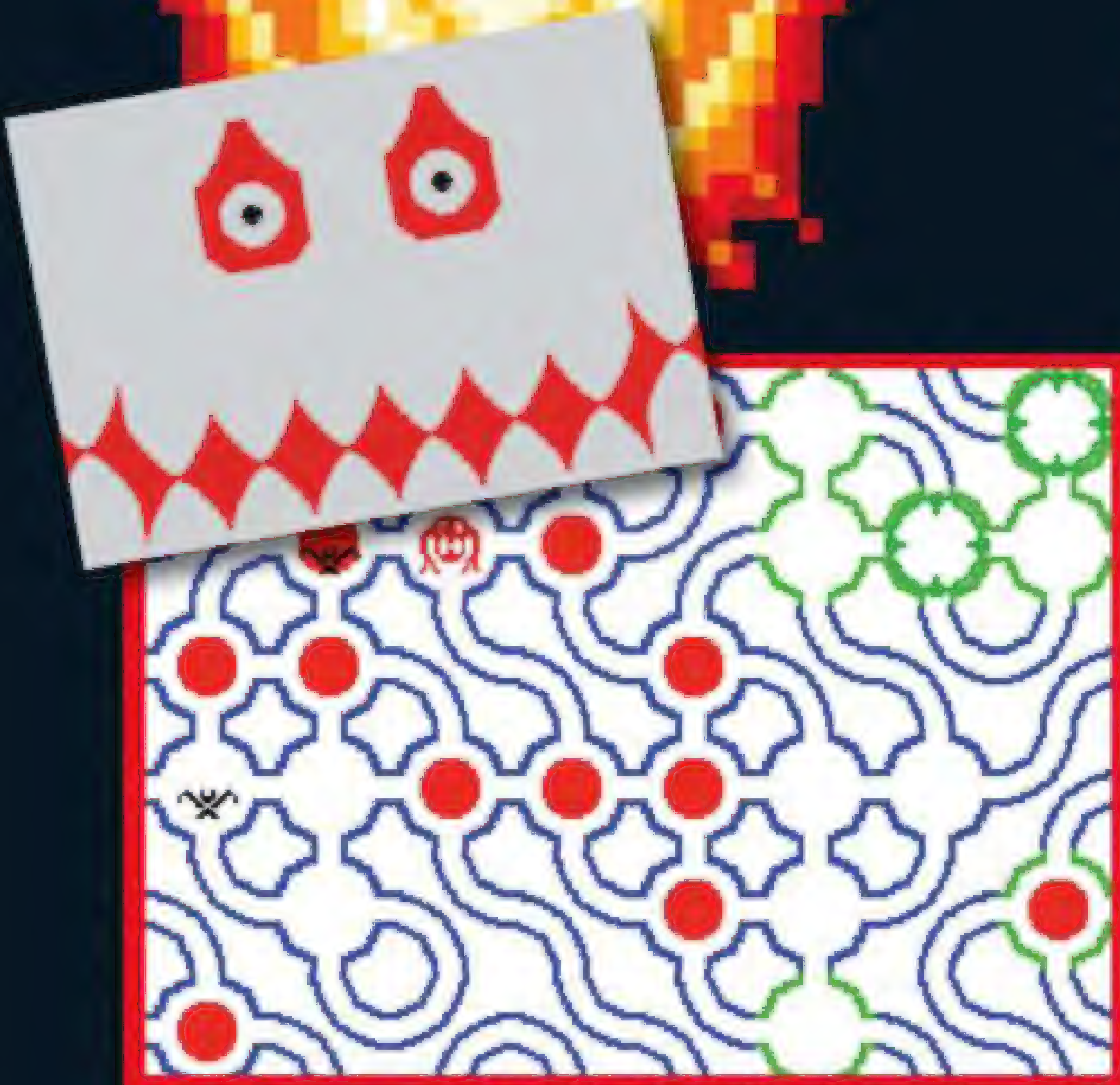
Super Drunk

From: *Bubble Bobble*

Aliases: Formerly Mr and Mrs Bub and Bob

Super Drunk is basically an inflated version of one of the standard enemies in *Bubble Bobble*, but that doesn't make him unmemorable. Waiting for you on level 100, and standing between Bub and Bob and their kidnapped gals, Drunk can only be defeated with the help of lightning-charged bubbles. Get the true ending to the game though and there's a neat twist to the boss's back story – the boys learn that their missing parents were actually transformed into Super Drunk by 'someone'. The game doesn't elaborate who that someone is, but our money's on that despicable Baron von Blubba.

How to beat it: Collect the lightning vases at the top of the screen, which allow the brothers to create lightning charged bubbles. The powerful bolts can then be launched at Super Drunk by popping them.



Wumpus

From: *Hunt The Wumpus*

This text based BASIC game from 1972 is widely seen as one of the earliest examples of a survival horror game. Using a command line interface, players had to blindly negotiate a deadly labyrinth of chambers and kill the monstrous Wumpus before it killed them. This was achieved by correctly determining which chamber the Wumpus was in and firing your arrow inside it to kill it. If you entered the chamber the Wumpus is inside then he would kill you, and if you fired your arrow into the wrong chamber you instantly alerted him to your whereabouts. A tense game of hide and seek, the eponymous Wumpus was finally given a face in the 1980 graphical remake/conversion for the TI-99/4A, though the core gameplay remained the same.

How to beat it: The game plays in a similar way to *Minesweeper* in that you must determine the location of a hidden target via visual clues. As you explore the cave you must note which of the chambers contain blood splats, as these tell you that the Wumpus is nearby. Through a process of careful elimination you should be able to successful track and slay the beast.

The End

From: *Metal Gear Solid 3: Snake Eater*

MGS 3 has plenty of great boss battles, but the standout is Snake's encounter with The End. A great example of *MGS* boss battles at their best – a pairing of imaginative and boss and creative scenario, it's the videogame sniper dual to end all videogame sniper duals. This epic battle of cunning, aim and wits takes place in an expansive forestry area, and pits you against a legendary sniper dressed in a ghille suit that prevents him being detected by thermal goggles. Though Snake cannot be killed by The End (the boss fires tranquilizer darts and will simply attempt to capture Snake), the battle is still incredibly tense, with Snake having to carefully track and kill his target under a heavy sense of vulnerability before he does the same to him.

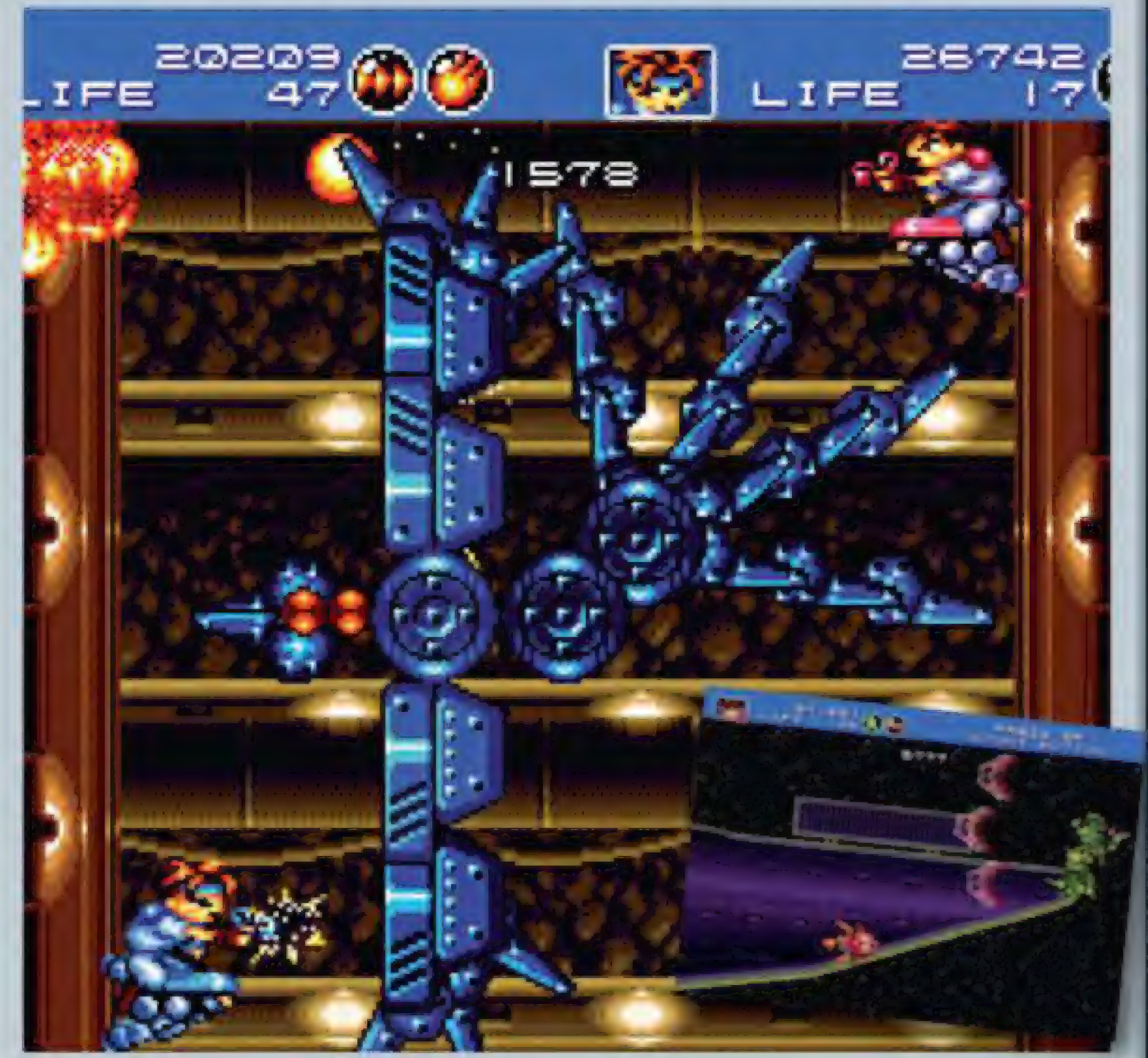
How to beat it: The End gives off no heat signature, so a good trick is to use the thermal goggles to spot his pet parrot that sits on his shoulder. Alternatively set your PS2's clock a week ahead during your battle and nature will finish him off instead.

Seven Force

From: *Gunstar Heroes*

Gunstar Heroes contains a number of great boss battles, but the most popular among its fans is Seven Force. Fought at the end of the game's exhilarating mining level stage, Seven Force takes its name from the fact it has seven different forms which it can change into randomly during the fight. Each 'Force' has its own look, behaviour and attack pattern, meaning there's a lot to take in and an unwelcome sense of unpredictability fused to the battle. Seven Force always starts off in his Soldier Force, a giant running robot, but can transforms into a crab, tiger, urchin, eagle, a lashing tail, and a handgun (which may or may not be homage to *Transformers*' head antagonist Megatron). Naturally, there'll be some you'll prefer facing than others.

How to beat it: As space is short we'll offer you some general tips to take down this foe. Typically you only have to face five or his seven forms, position is paramount (try to keep your distance from it) and the homing weapon is generally best to use.



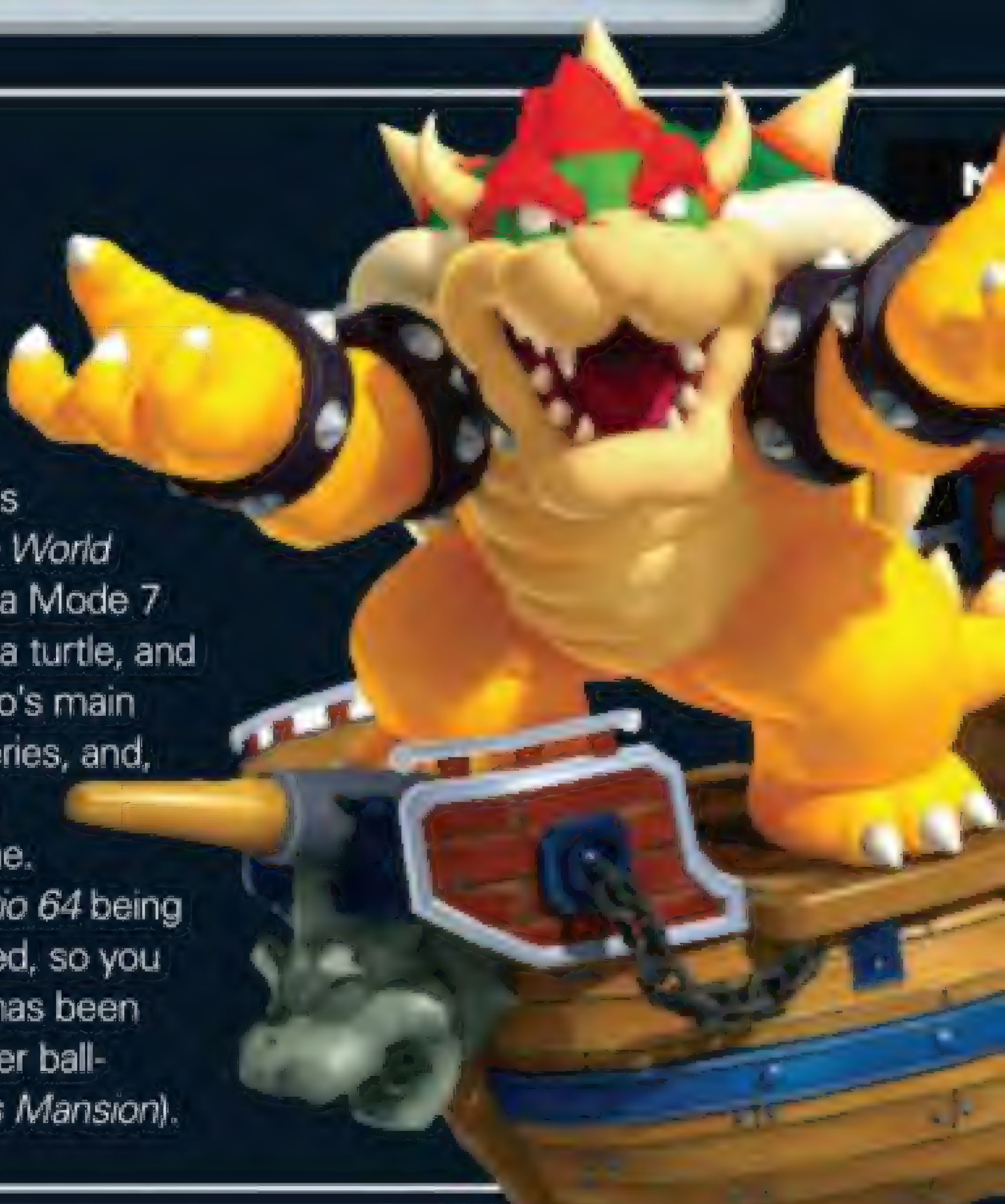
Bowser

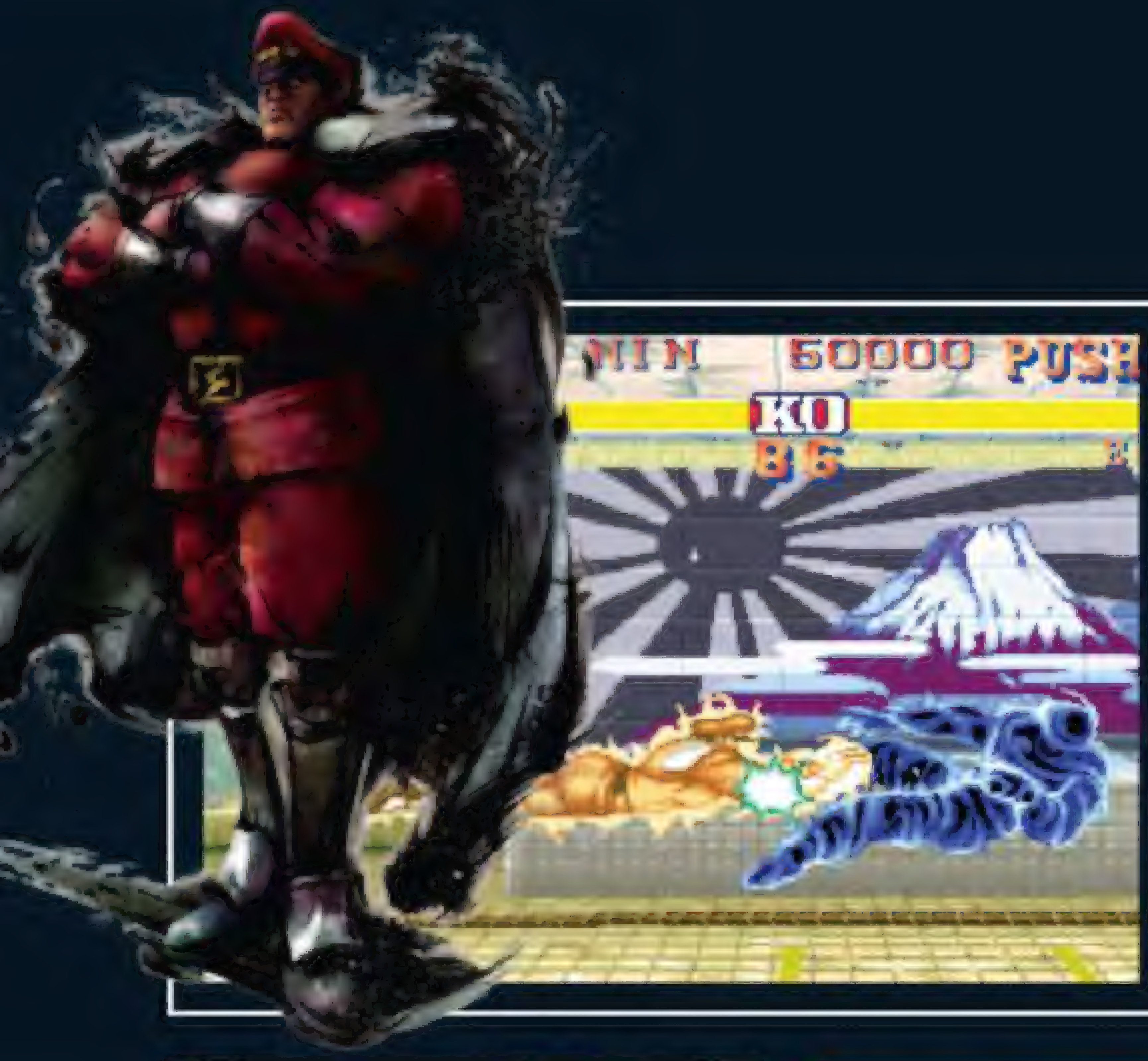
From: *Super Mario Bros*

Aliases: King Koopa, The Sorcerer King

Bowser battles often leave an impression on gamers. From the boss's first appearance in *Super Mario Bros*, which saw players dodging his fireball attacks for the entirety of his castle stages, to the final battle in *Super Mario World* that saw Bowser dropping bombs from inside a Mode 7 powered flying contraption. Bowser is actually a turtle, and was named after a Korean soup-like dish. Mario's main antagonist has become an iconic part of the series, and, with the exception of US version *Super Mario Bros 2*, has appeared in every main *Mario* game.

How to beat it: In most games (*Super Mario 64* being the obvious exception) Bowser can't be touched, so you defeat him by other methods. In the past this has been pools of hot lava, or throwable Koopas and other ball-shaped objects (*Super Mario World* and *Luigi's Mansion*).



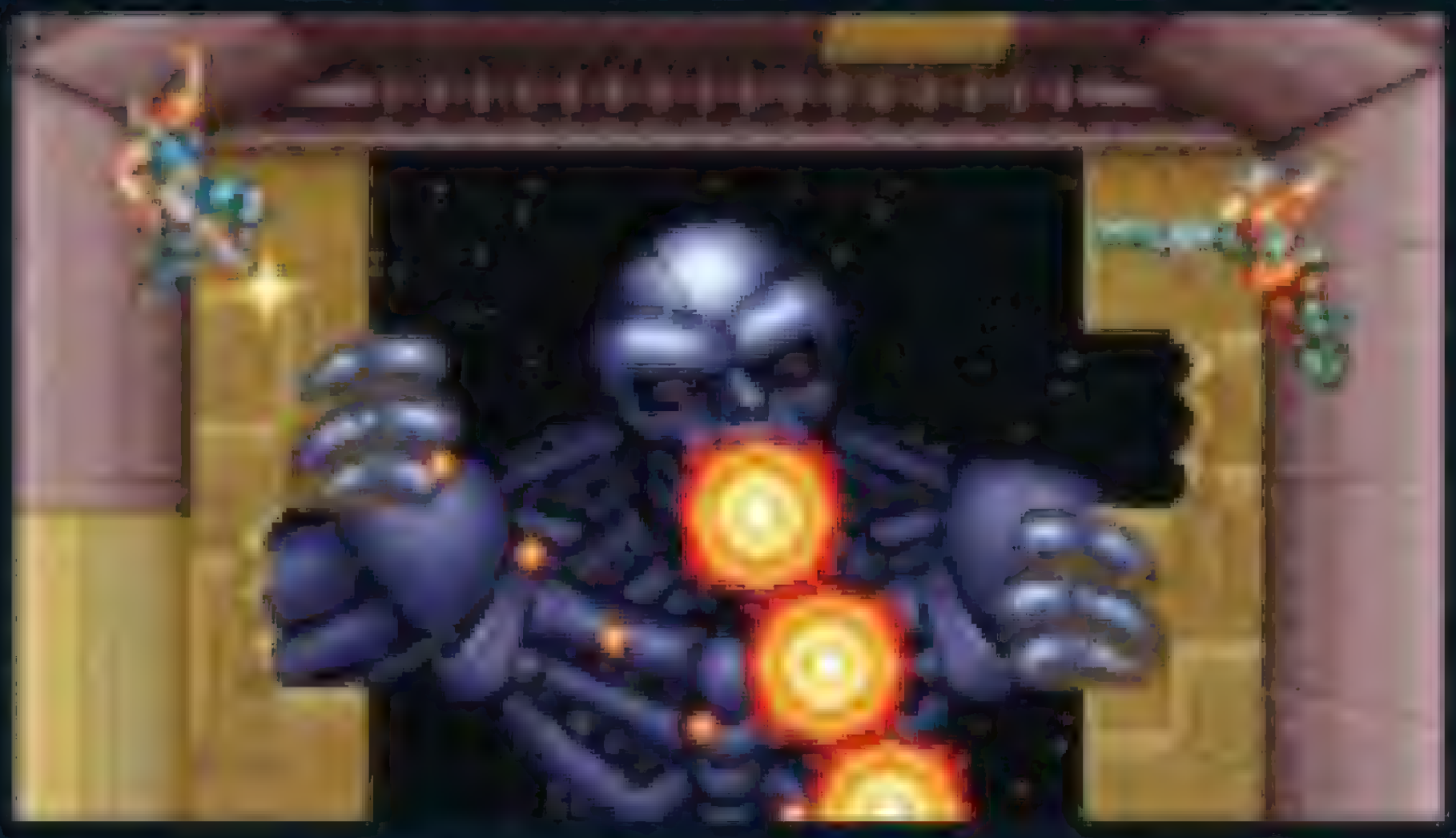


M Bison

From: *Street Fighter 2 – The World Warriors*
Aliases: Vega, Master Bison, Mighty Bison

The ominous kingpin of the crime organisation in *Street Fighter* land, M Bison's look is said to have been inspired a cape-wearing villain from the violent manga Riki-Oh. Making his first appearance in *Street Fighter II*, Bison's militant uniform is reminiscent of those worn by SS officers of Nazi Germany, which only adds to his sense of menace. In terms of power and threat, Bison is everything you'd want from a fighting game boss, and like all the best ones isn't without his fans. There is also debate over what the M in his name stands for. Originally some assumed it stood for Mike (on account that the name was originally given to the Mike Tyson-inspired boxer character Balrog), though in the *Street Fighter* games Bison has referred to himself as both Master and Mighty Bison. Come to think of it, who cares?

How to beat it: Bison's attacks are largely made up of special moves, so use this to your advantage. Learn to read and block his special attacks and counter accordingly. The Double Knee Press is a good example, as a successful block will leave him wide open.

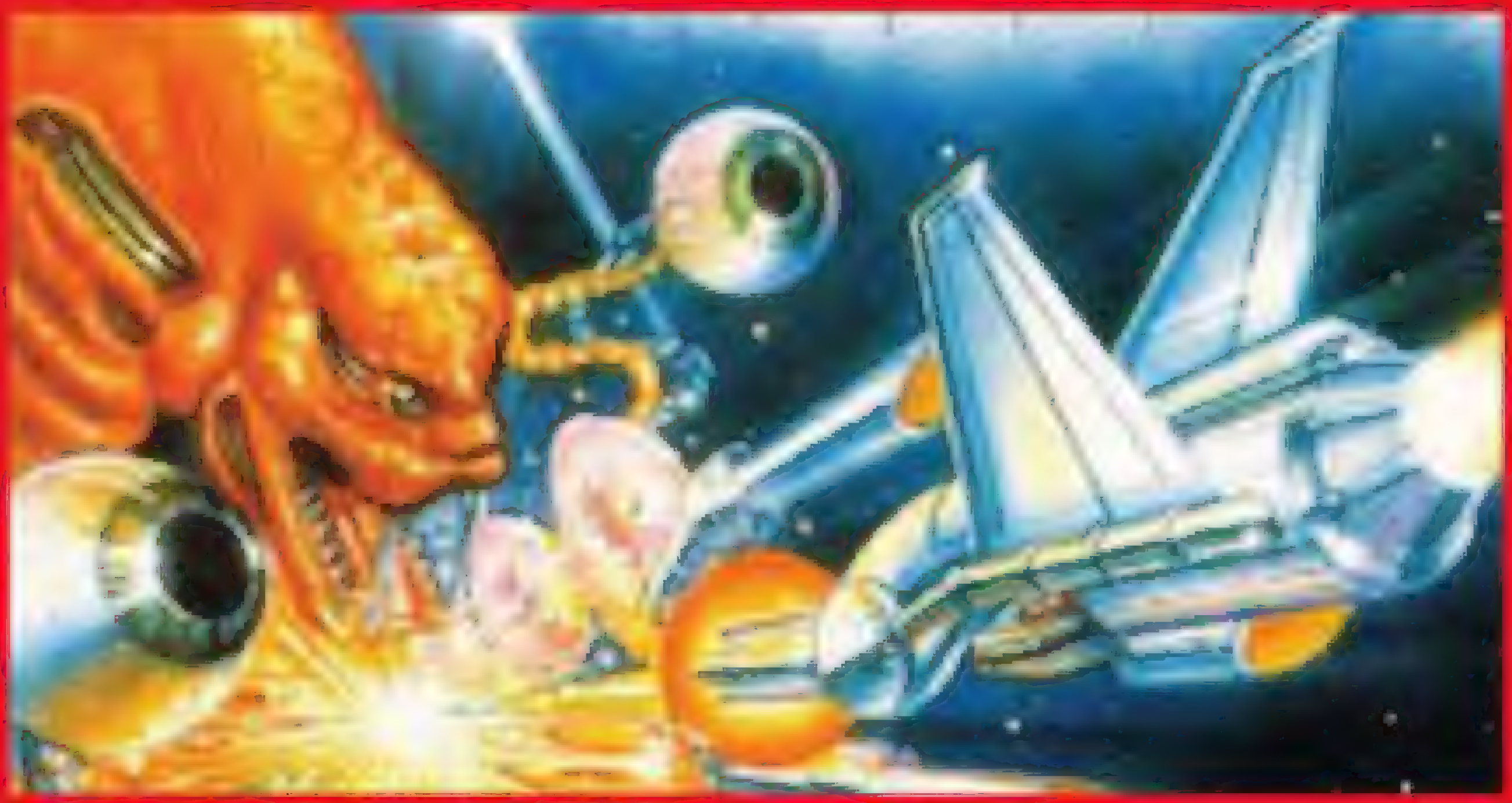


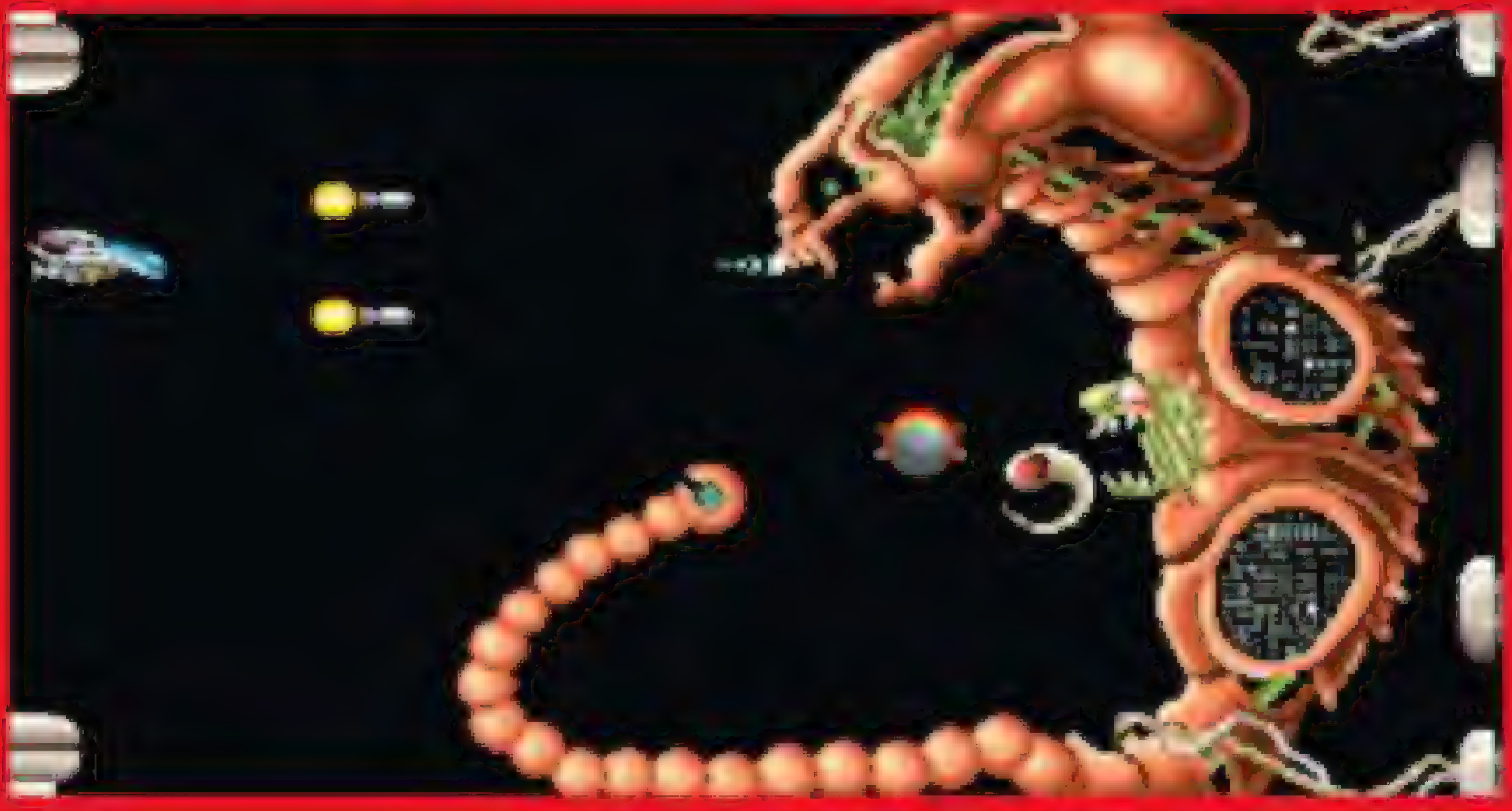
Robot Skeleton

From: *Contra III: The Alien Wars*

After dispatching two annoying Terminator clones, Jimbo and Sully face their biggest nemesis yet… An even bigger Terminator clone. Breaking through the doors of a cargo door, the huge robot starts filling the room with fire, only stopping to throw out timed bombs that fill large parts of the screen upon exploding. There are plenty of great *Contra* bosses, but this is easily the most memorable.

How to beat it: This giant robot spits out massive gouts of flame, so you need to stay constantly on the move in order to avoid it. Dodge the bombs he throws out and continually aim for the head.





Dobkeratops

From: *R-Type*

The name on his birth certificate reads Dobkeratops, but this boss is more widely referred to as 'the first boss in *R-Type*' – it rolls off the tongue better. With perhaps the exception of another space dwelling boss on this list with a game named after him, Dobby is probably the most iconic boss in shoot-'em-ups. That moment at the end of *R-Type's* first stage where the screen turns dark and this imposing looking guardian, which shares an uncanny likeness to the Xenomorphs from the *Alien* films, slides into view is iconic, terrifying and memorable. Earning instant reverence among shooter fans, the creature has appeared in several sequels, including *R-Type III* and *R-Type Final*.

How to beat it: Dobkeratops' weak spot is found on its belly. Remove his unsightly alien growth with plasma blasts, watch the guardian turn into loads of little explosions, then wash your hands.

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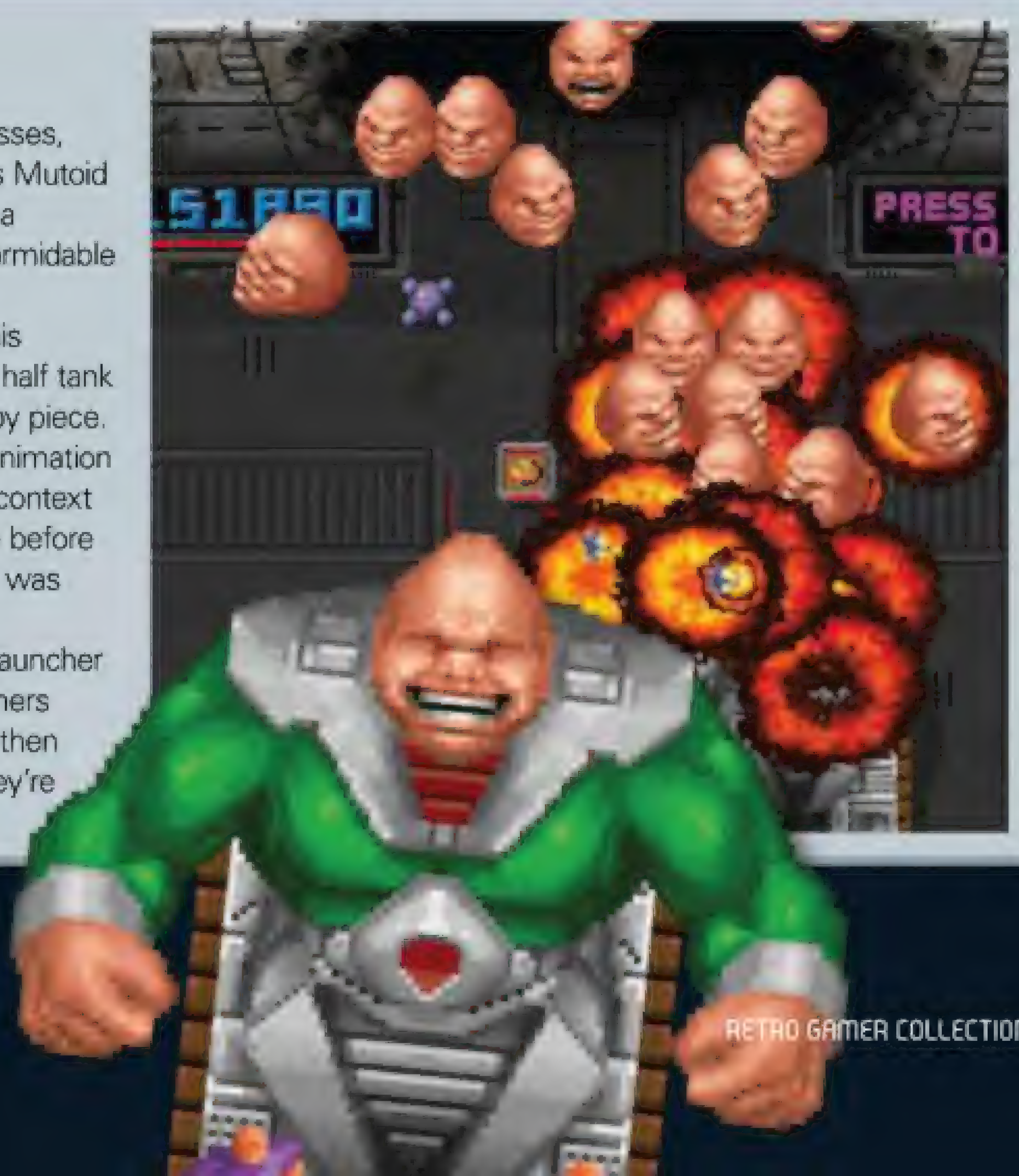
Mutoid Man

From: *Smash T.V.*

In terms of memorable first stage bosses, few are as iconic – or challenging – as Mutoid Man. Described by Eugene Jarvis as a Russian nesting doll, Mutoid was a formidable adversary and a real slog to conquer. Towering over the player-character, this intimidating and formidable half man, half tank would have to be taken down piece by piece. Thanks to the stunning artwork and animation work by John Tobias, which allowed context sensitive parts and sprites to degrade before your eyes, as hard as this fight was it was always incredible to watch.

How to beat it: Use the grenade launcher and rockets and pick off the two gunners stationed on either side of his tracks, then focus all your fire on his arms until they're destroyed. Then take out the head.



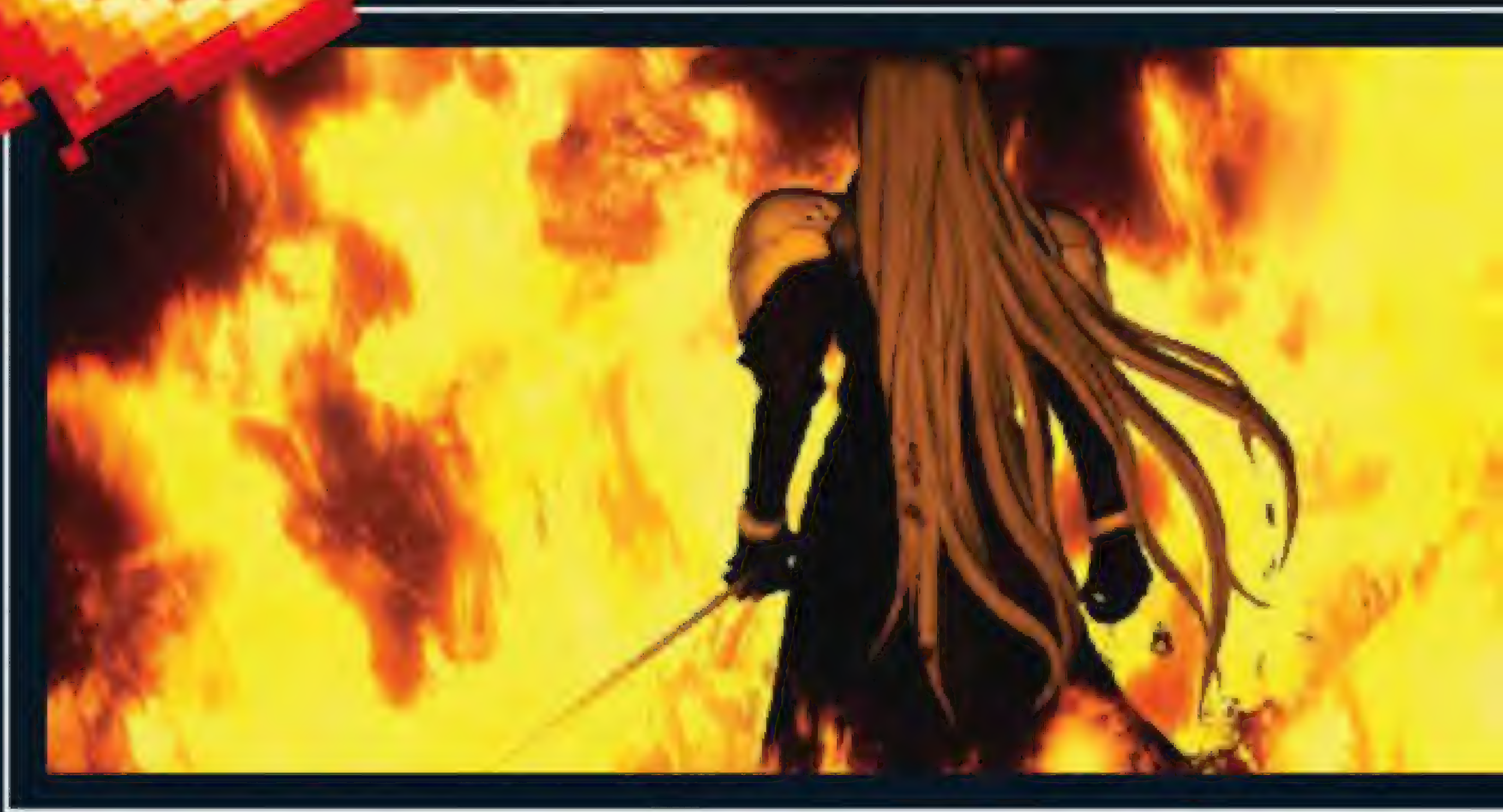
Goro

From: *Mortal Kombat*

Aliases: Shokan Prince Goro

Shang Tsung was a bit of a lame final boss on account of him lazily mimicking the moves and fighting styles of the other fighters in the game. Sub-boss Goro though, was a memorable adversary – a scary, intimidating half-man, half-dragon you didn't want to get anywhere near during the battle. If you did then you'd be grabbed by one his four arms, and treated the same way a ragdoll is by a bored, angry toddler. With your fighter's torso used as a bongo drum, stamped on and thrown across the screen like a piece of trash, you could imagine what it must've been like for Luke Skywalker when he was pitted against the Rancor in *Return Of The Jedi*. In 1993, Goro scooped the award for best villain by *Nintendo Power*, and, also Hottest Gaming Hunk by *EGM*. 1993 must've been one ugly year for game character design, that's all we can say.

How to beat it: The key to defeating Goro is to keep your distance. Use any attack that allows you to do this – flying kicks are good, as are fireballs if your fighter can throw them. And if you do get stuck in, strike and then get straight back out again.



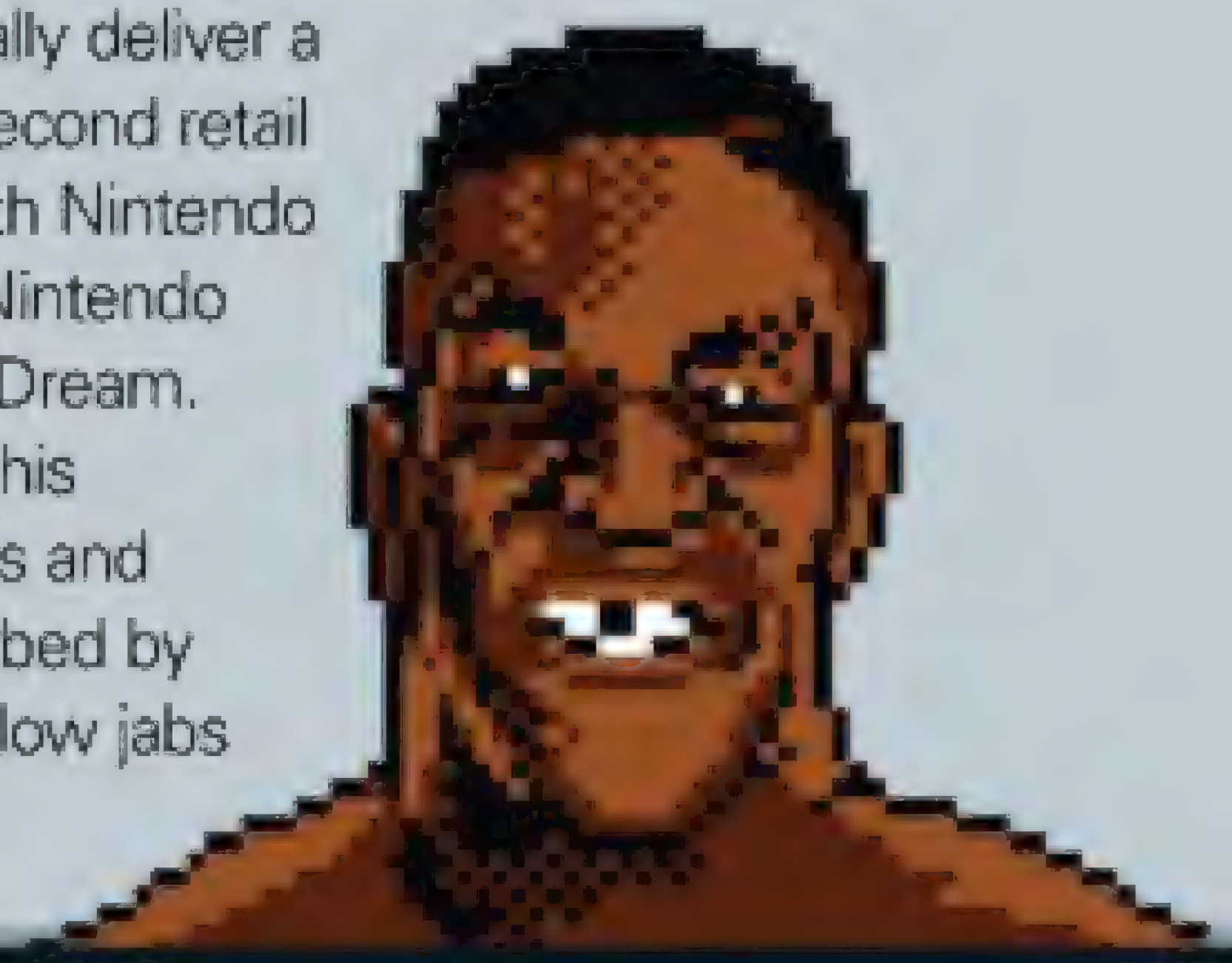
Mike Tyson

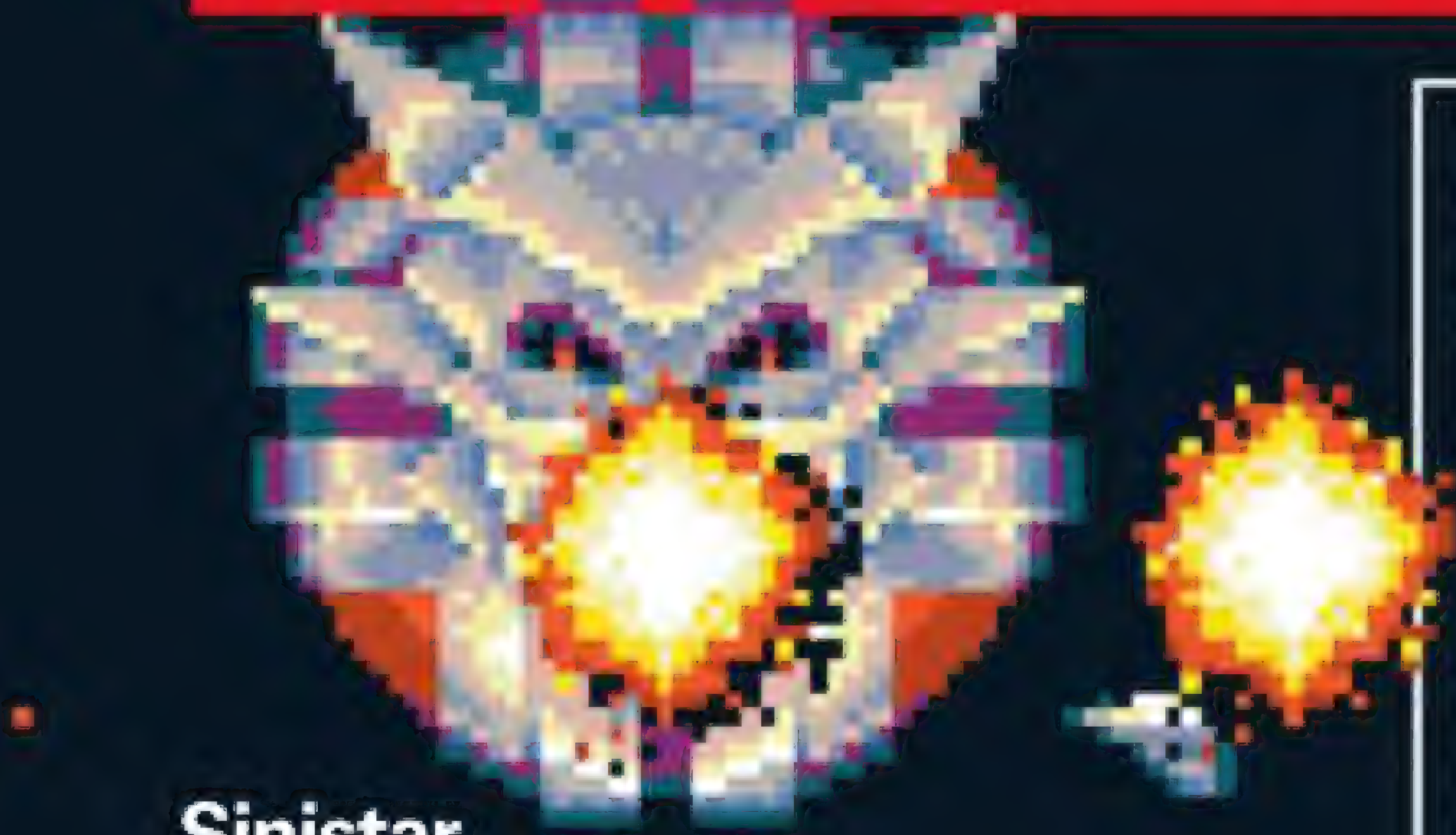
From: *Mike Tyson's Punch-Out!!*

Aliases: Iron Mike, Kid Dynamite, The Baddest Man On The Planet

With the exception of boxing games, few videogames let you punch a celebrity. Nintendo's loose coin-op conversion of its twitch arcade boxing sim, saw Iron Mike guest star as Little Mac's final opponent in the game. Capable of delivering uppercuts that floored Mac in one hit, players had little wiggle room for error and had to basically deliver a neigh-on perfect fight. Mike Tyson was omitted from the second retail release of *Punch-Out!!* after his three year likeness deal with Nintendo (for which he was reputedly paid just $50,000 for) ended. Nintendo then replaced him with the far less imposing sounding Mr. Dream.

How to beat it: Tyson will flash before launching one of his devastating down-in-one uppercuts, so look out for the cues and dodge accordingly. Tyson's jab flurries can actually be absorbed by Little Mac, so use these moments to earn stars by landing low jabs to his gut.





Sinistar

From: *Sinistar*

"I am Sinister! Beware coward! Run, run, run! I hunger! Rarghhhhhh!!!!" These words were enough to strike panic into the belly of many gamers back in the Eighties. Sinistar was an unsettling, screaming, taunting spaceship that would harass and torment gamers in this classic multi-directional shooter by Williams Electronics. As Sinistar was constructed before your eyes, so the gameplay became a frantic race to blast the asteroids, collect the crystals and use them to create enough Sinibombs to shut the shrieking skull up before it ate you.

How to beat it: Time is of the essence in this battle. As worker ships race to assemble Sinistar at the start of the stage, use this time to mine the asteroids, create Sinibombs and wage an early attack.

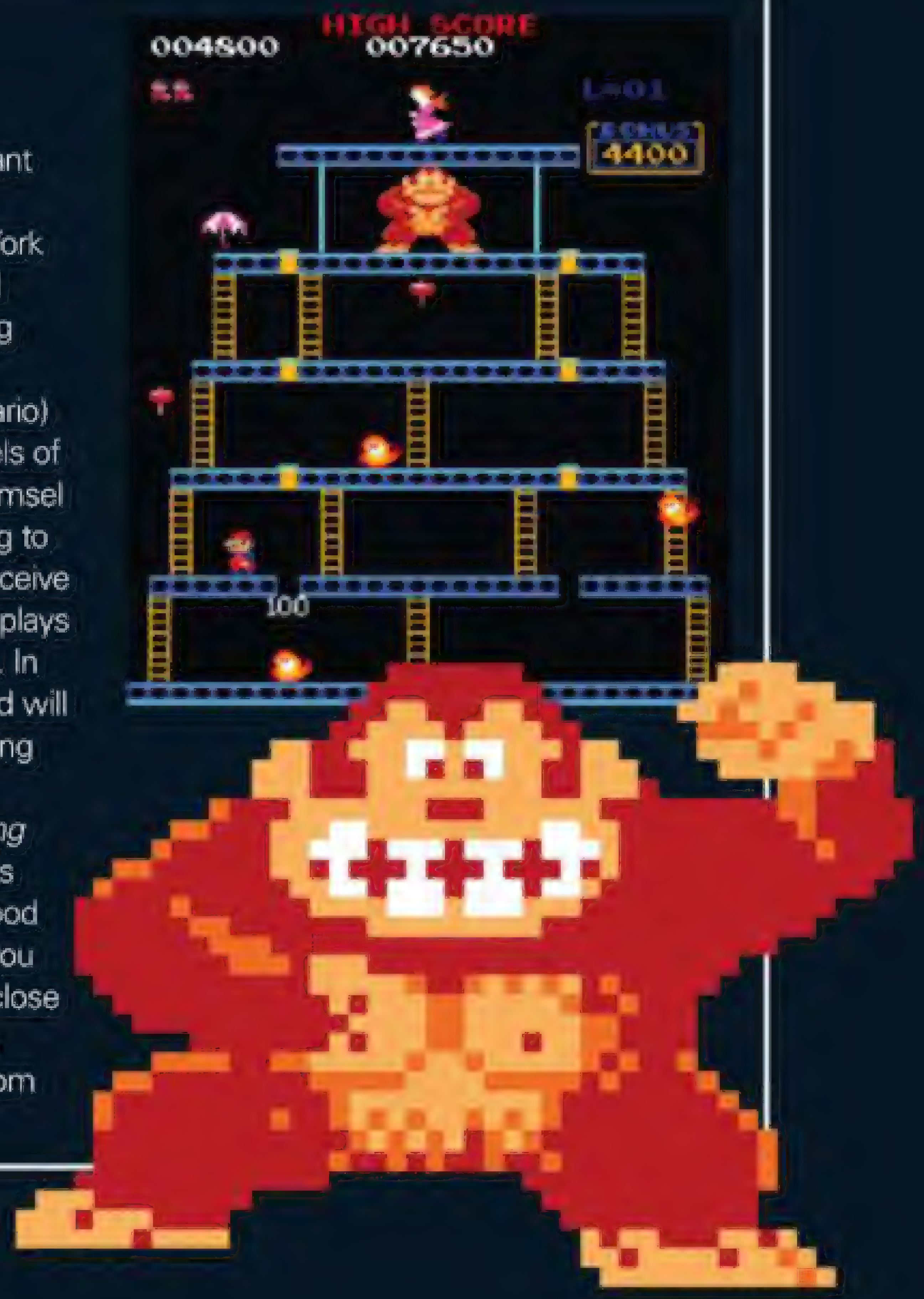
Donkey Kong

From: *Donkey Kong*

Aliases: Cranky Kong

Though he has since changed his ways, Nintendo's giant ape is notable for being Mario's first ever antagonist – though investigations into the Donkey Kong Vs. New York case of 1981 would reveal that the aggressive ape had been mistreated by his moustachioed master, providing some explanation as to why he went on a girlfriend kidnapping rampage. Playing the role of Jumpman (Mario) your mission was to chase the narked ape up four levels of a construction site, and finally rescue his distressed damsel by pulling away the pegs that supported the scaffolding to cause the ape to smash painfully on the ground and receive some nasty head trauma. Like *Sinistar*, DK's presence plays a notable part in the design of the game he appears in. In each of *Donkey Kong's* stages DK is always visible, and will often interact with the levels – lobbing barrels, or dancing around on the top platform of the 'Pie Factory' stage.

How to beat it: The true final screen in *Donkey Kong* is 'Rivets', which sees Mario trying to remove the rivets to cause the level to fall and Donkey Kong with it. A good attack is to clear the bottom ones first, as this leaves you clearing the last few with a handy hammer power-up close by. Bash the chasing flames to create some breathing space and then laugh maniacally as they regenerate from the bottom of the screen.



Sephiroth

From: *Final Fantasy VII*

Aliases: The Legendary Soldier, The Man In The Black Cape

Some of the most iconic villains in history have turned bad due to something tragic in their past – Darth Vader, Big Boss, Lots-o' from *Toy Story 3* and Sephiroth. Sephiroth was a coveted solider of Shinra's Soldier program, but turned to the dark side after learning the truth about his past. After discovering he's a product of experiments conducted by Shinra's Soldier division, he turns against the company, destroys Nibelheim village and sets off to wreak revenge on the planet, justifying his actions as a way to cleanse corruption in the world. However, one very famous callous act in *FFVII* would shatter any empathy you might have felt for him as a result of the revelation. Both a highly skilled soldier, and trained in the arts of magic, Sephiroth is a formidable opponent, and the most iconic villain in the revered RPG franchise.

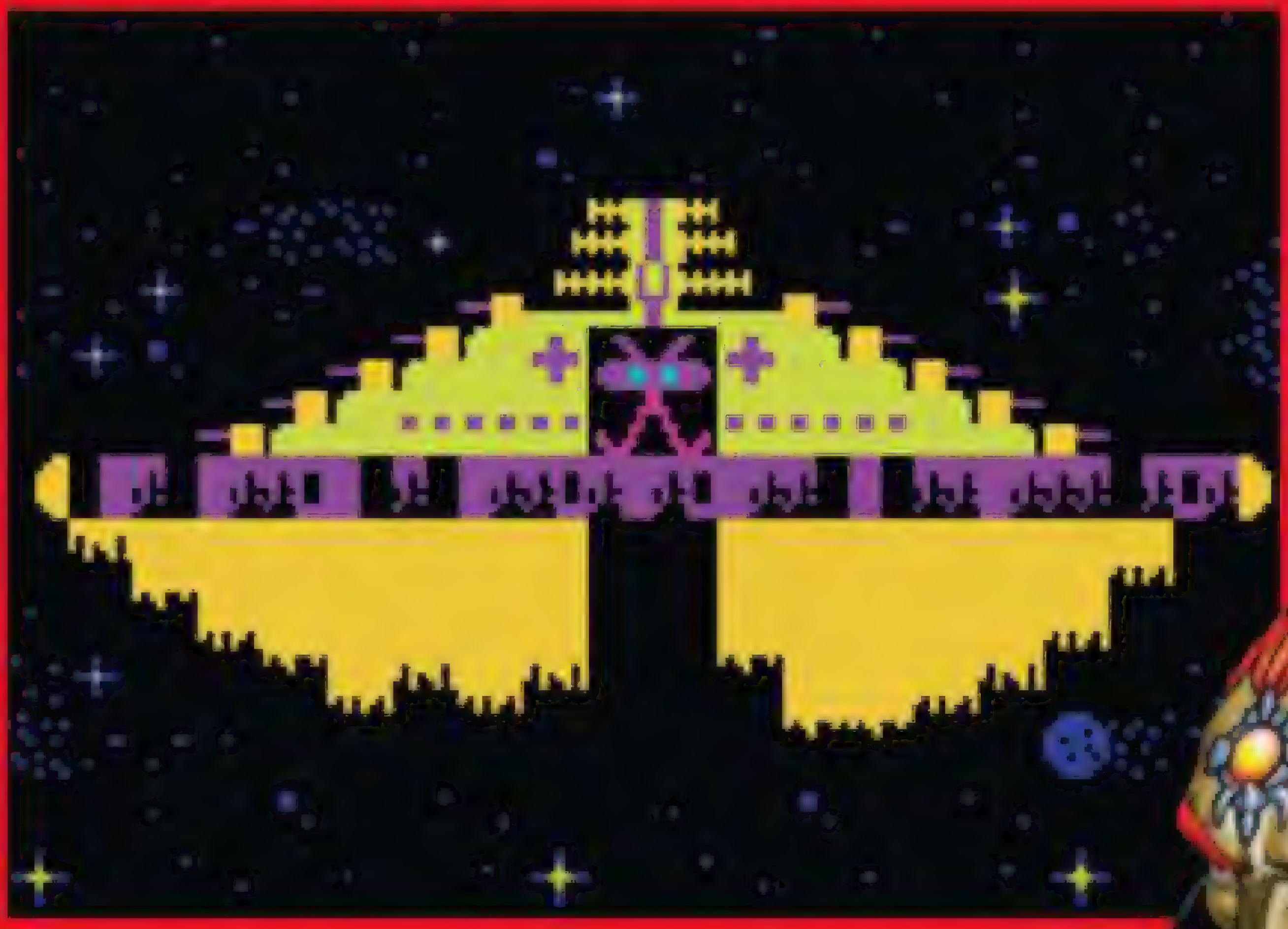
How to beat it: Sephiroth has three different forms, so defeating him is a bit of a slog. To make life easier, get yourself to a good level (99), and use Bahamut Zero, 4X-Cut or Knights Of The Round. All are pretty effective against him.

Mothership

From: *Phoenix*

Famous for being the first videogame boss to be presented to gamers as a separate challenge from the main game, the mothership from Amstar Electronics' *Phoenix* is an iconic and influential baddie. Helping *Phoenix* stand apart from many of the other *Space Invaders*-inspired shooters that saw release at the time, this boss left a lasting impression on gamers thanks to being both huge and colourful. Filling a third of the screen, players had to whittle away the ship's hull and shield in order to create an opening for a single bullet to travel skywards and into the head of the alien piloting the ship. A tense and epic space battle, similar boss-levels would later be seen in popular shooters such as *Star Castle*, *Yars' Revenge* and *R-Type*.

How to beat it: A good trick is to first clear a path through the hull, directly underneath the alien, and then direct your fire to one of the edges of the mothership (where the hull is at its shallowest) to pick holes in its scrolling shield. Once you've created a large enough opening, send a bullet up the centre of the hull to kill the alien and destroy the ship.



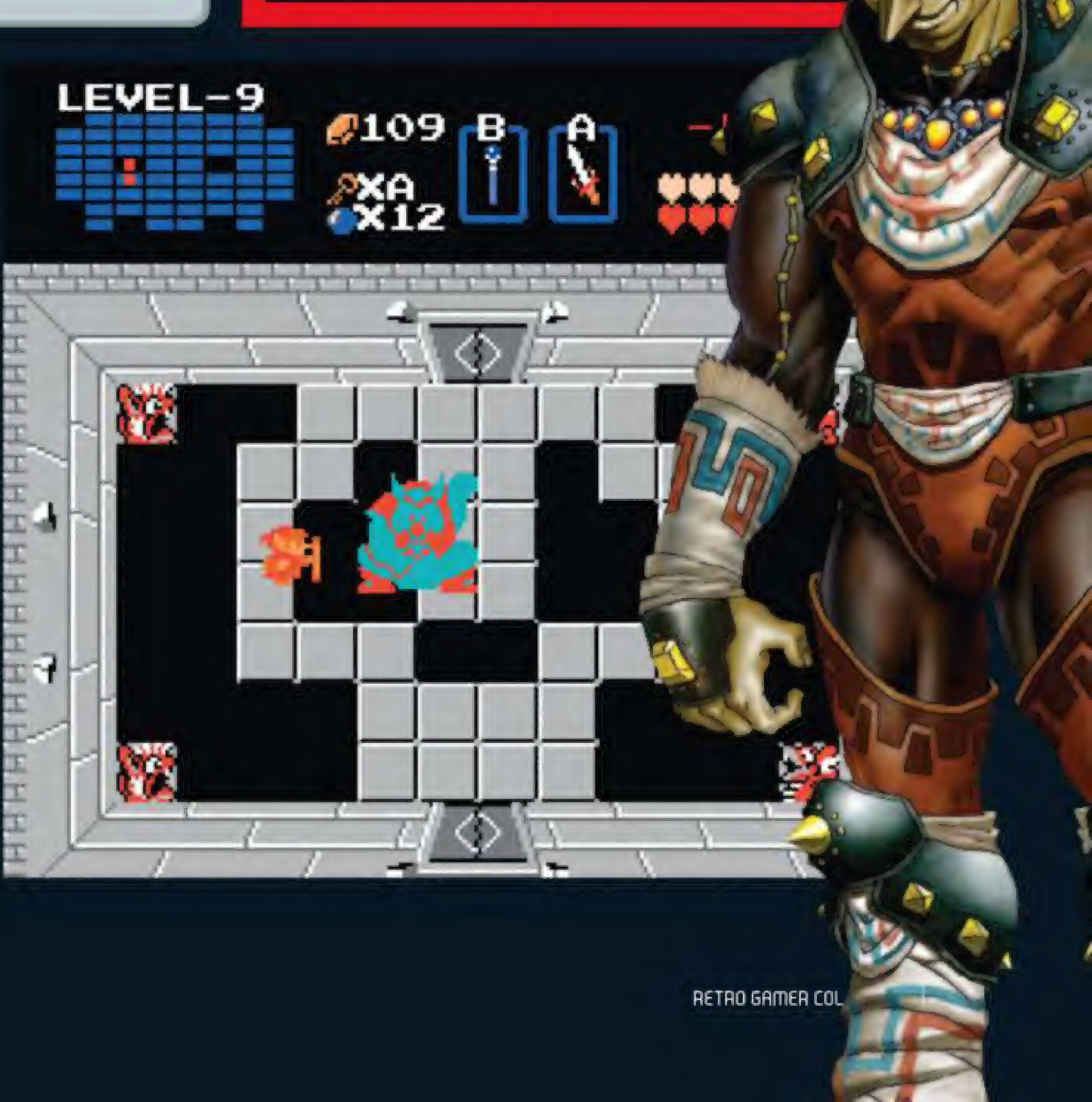
Ganon

From: *The Legend Of Zelda*

Aliases: Ganondorf, King Of Darkness

The despicable sorcerer and thief who seeks to use the power of the Triforce to rule Hyrule is perhaps Nintendo's darkest ever villain. This half man, half boar is armed with the Triforce of Power, and believes himself to be indestructible and God-like in power, although this is constantly disproven by Link's skill time and time again. Ganon first appeared as protagonist in *The Legend Of Zelda*, where he took the form of a blue pig that could make himself invisible. Later games would expand his back story, and *Ocarina Of Time* would finally unveil the villain's devious human side. Swearing allegiance to the king of Hyrule, upon gaining his trust Ganondorf (his human name) turns against him and usurps the sovereign – forcing princess Zelda to call upon Link for help. The game ends with an epic clash with Ganon at the top of his tower. There the boss falls at Link's feet, and the tower begins to collapse. As Link and Zelda escape, from the dust and rubble emerges Ganon in his powerful beast form. He is also known for not making major appearances in spin-off and portable *Zelda* games, choosing to be quite picky about when he graces us with his evil presence.

How to beat it: Though a tough adversary, Ganon does have a couple of weaknesses that the player should always exploit. He's susceptible to light arrows, and really hates being poked with the Master Sword.



THE CLASSIC GAME

The videogame that did for bubble bath what *Jaws* did for lilo sales; *Pang* (aka *Buster Bros.*) is a challenging, tense and tremendously entertaining arcade game with a great concept that blends together different gameplay styles, from puzzler to platformer. Though it's a franchise that hasn't seen much action in recent years, we decided to take another pop at it.

Clock
Freezes the bubbles for a few seconds and makes them even easier to hit.

Dynamite
Turns all the bubbles into their smallest size.

Hourglass
Slows the speed of the bubbles, making them easier to hit.

Dual shot
Allows you to fire two harpoons instead of just one.

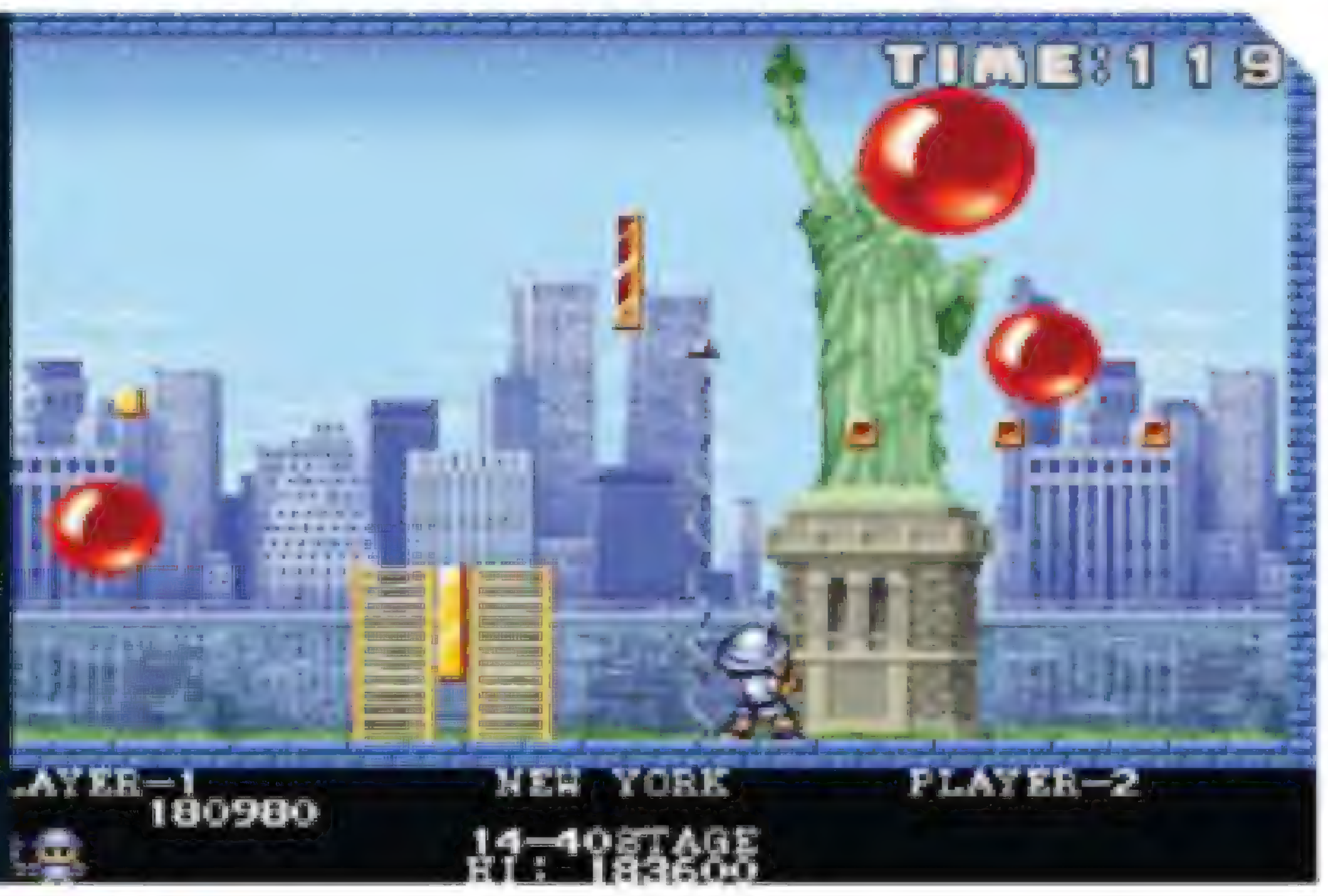
Grappling hook
Fires shots that stay attached to a tile or ceiling for short period of time.

Force field
Generates a shield around your character, allowing them to take a single hit.

Machine gun
Fires rapid fire bullets, is very useful for popping lots of bubbles quickly.

MEMORABLE MOMENTS

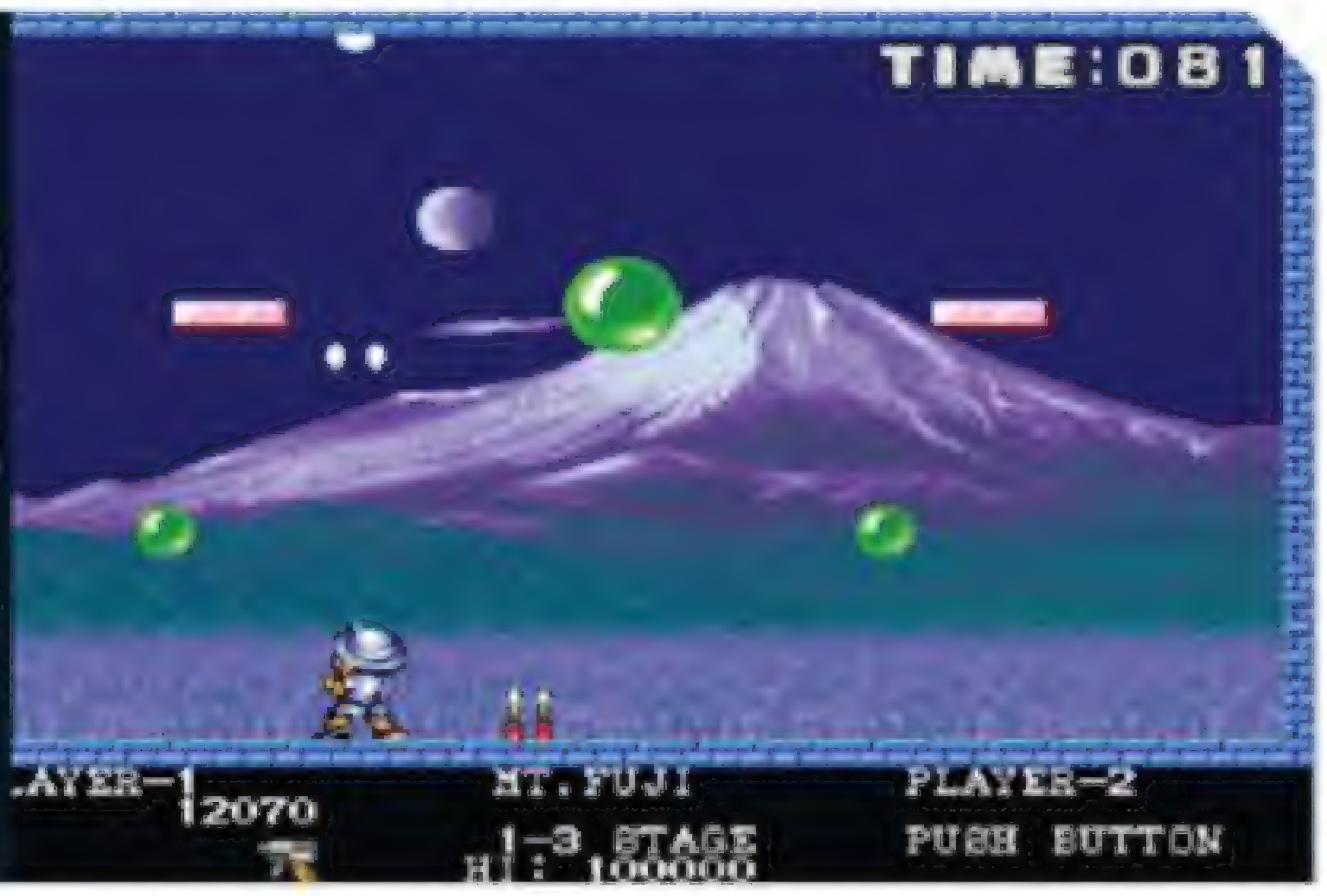
WHY IS IT A CLASSIC?



Pop Star

With elements of *Breakout*, *Space Invaders* and *Bubble Bobble*, *Pang* is a game that feels strangely familiar yet utterly original both at the same time. Like most classic arcade games, its gameplay is really simple to pick up. Plonked inside single-screen arenas, your only way out is to pop all the bubbles on-screen. However, popping a bubble would make it split off into two smaller bubbles, and shooting those would create two lots of smaller bubbles, a bit like a hydra. Quick thinking and dexterity therefore play a big part in beating the game, and playing with a friend tends to make the job a bit easier too.

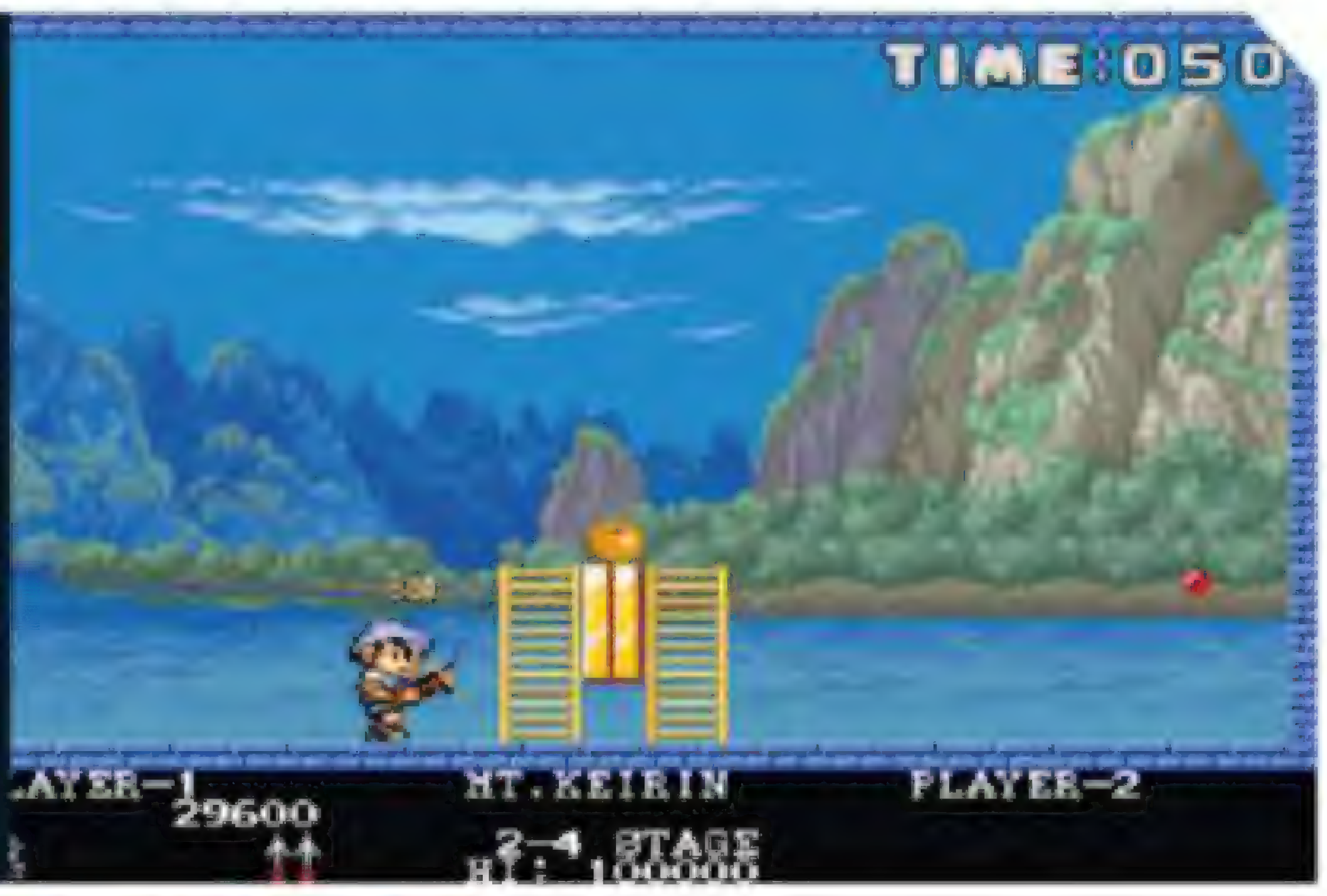
BEST POWER-UP



The Pop-pop

There's a nice selection of power-ups in *Pang*, but our favourite is the machine gun. Typically you're armed with a harpoon that fires and disappears when it comes in contact with a tile, wall or (hopefully) bubble. There are better versions of the harpoon (detailed in the box out opposite), but the ultimate pick-up is definitely the machine gun. Allowing you to blast away at the bubbles and fire off multiple shots, it makes life so much easier. Its only drawback is you have to be precise with your aim, as unlike the harpoon it doesn't leave a trail, which can used to trap bubbles and create makeshift barriers.

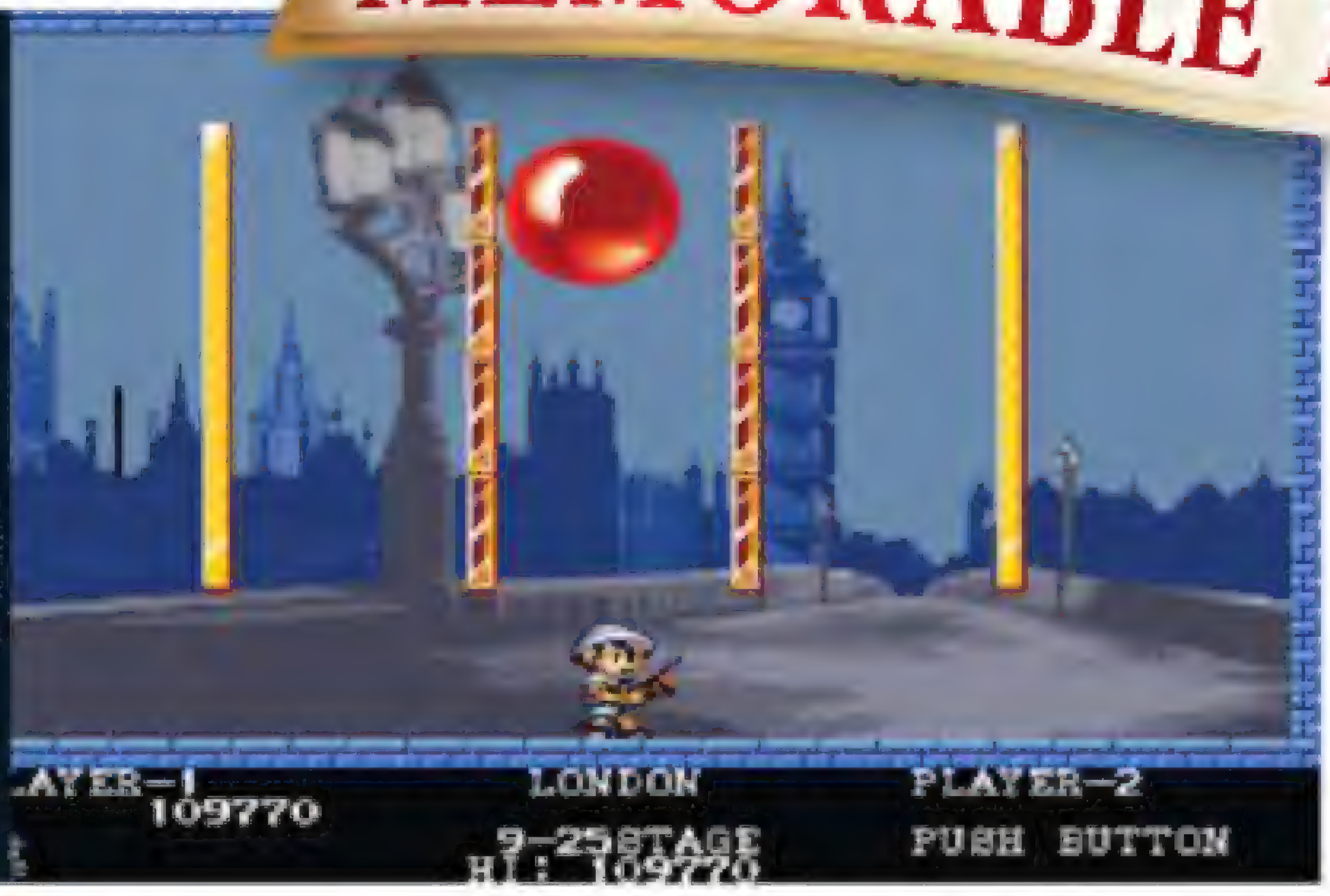
BEST MOMENT



The final bubble

The best moment in *Pang* is easily when you're down to a single small bubble and you still have acres of time on the clock. It's the single 'in-play' moment where you can actually take your foot off the gas as you aren't frantically trying to avoid bubbles coming at you from all directions. That moment when you fire your harpoon up the screen and watch gleefully as that single, small annoying bubble jumps towards its inescapable doom is a joyful moment indeed. For us, is the best moment in the game. Beating it with a mate is certainly up there too.

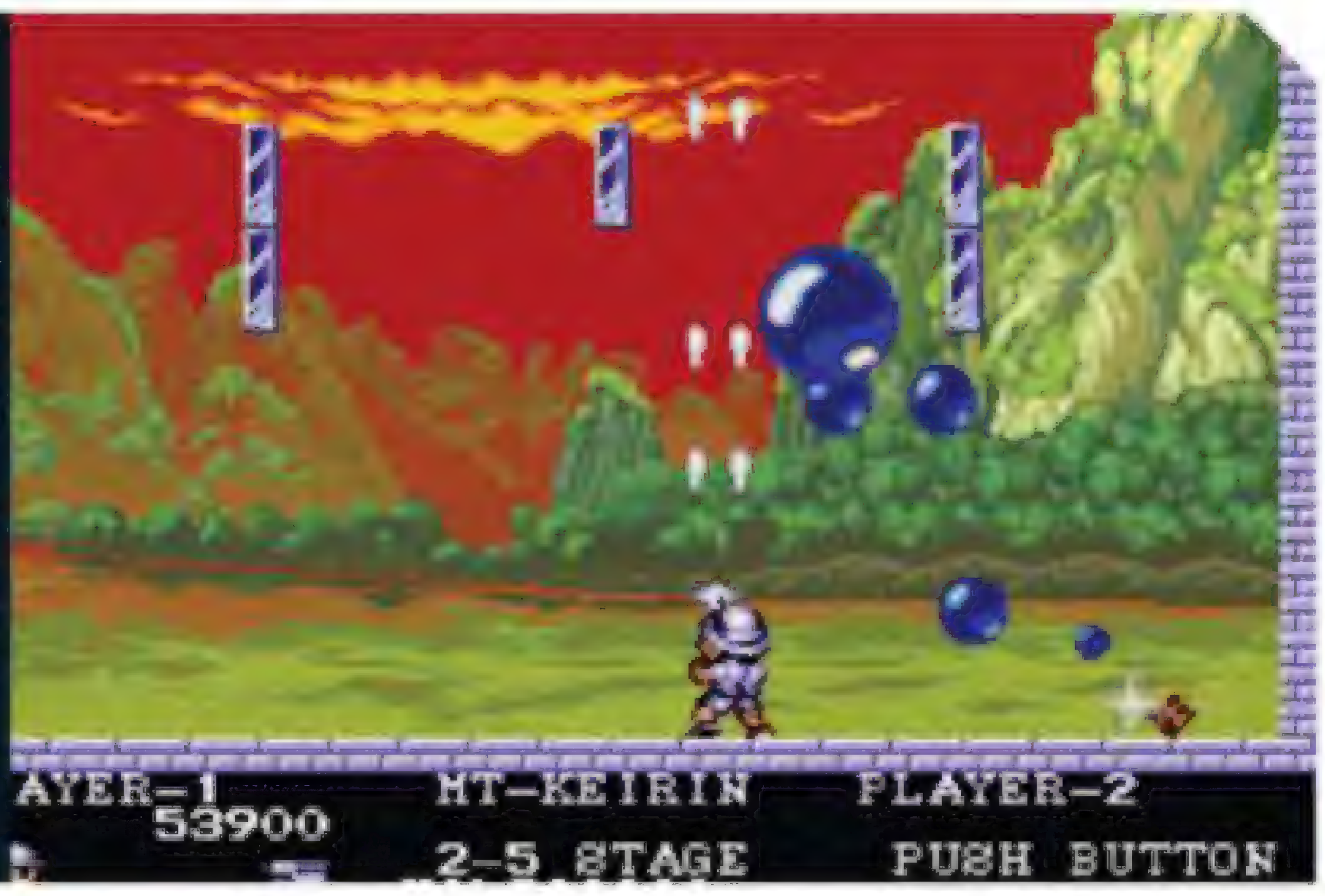
BEST STAGE



The big smoke

There are some 50 stages in *Pang* and they take you all over the world. As the level design is pretty basic (usually it gets nothing more complex than a few ladders and tiles), the developers went to town on the backgrounds, drawing famous landmarks and places of interest to ensure the various stage settings at least looked a bit different. This isn't just for show though, as when you reach some of the colder places on the planet the levels are adorned with snow, and this makes the ground slippery and more difficult to aim your weapon and blast those pesky bubbles.

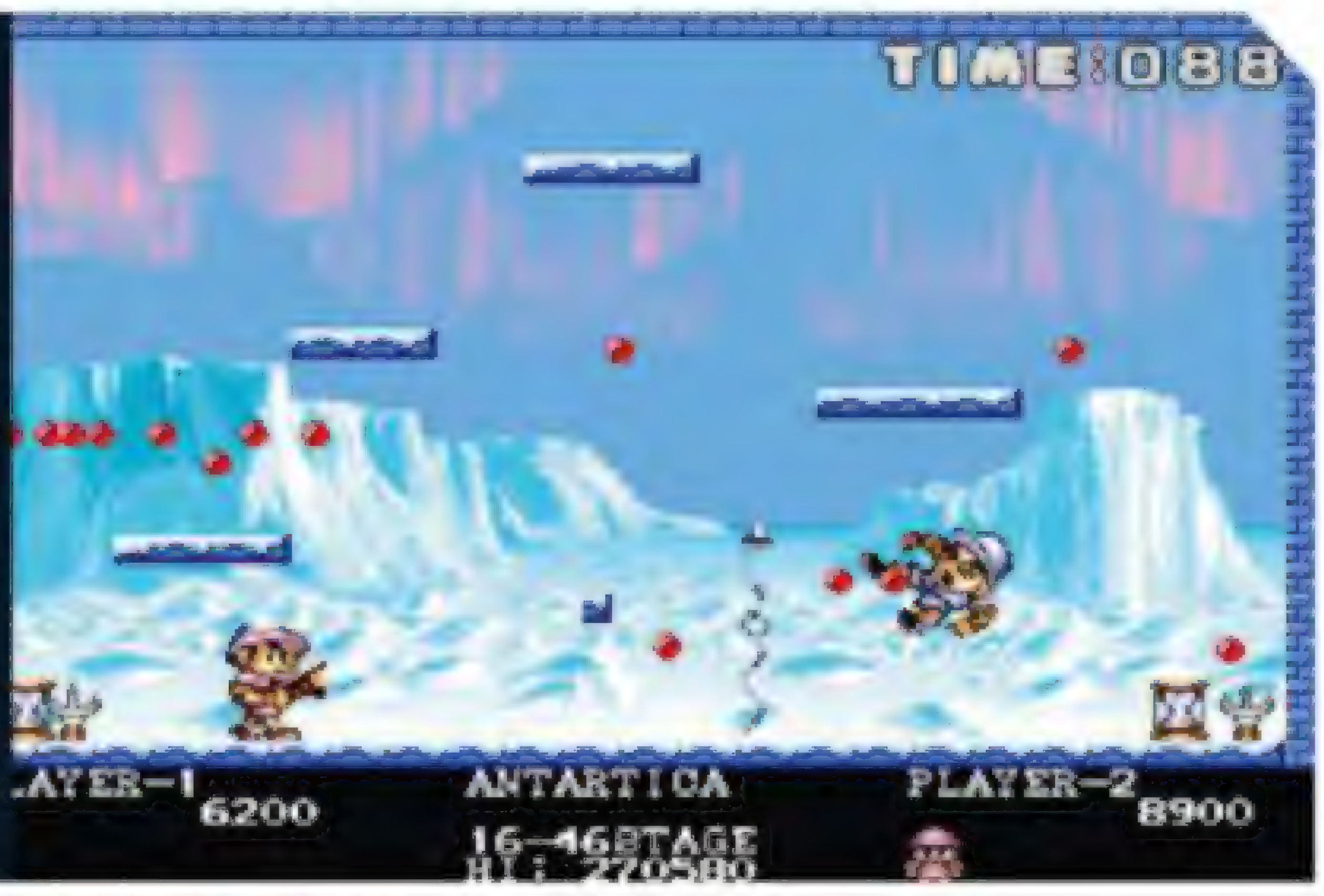
BEST CONVERSION



Amig-A+

Pang was one of those rare arcade games that enjoyed decent conversions across the board, with Ocean producing solid-to-stunning ports for home computers. The Best O' The Bunch Award has to go to the spiffy Amiga conversion, which was coded by Ocean France. A solid conversion that looks, sounds and plays the part, it's a stunning effort that feels virtually identical to its arcade counterpart – it just plays slightly slower and isn't quite as colourful. The ZX Spectrum version, by Arc Developments, was also great a port, scoring a not too shabby 94% in the pages of Your Sinclair.

HARDEST SCREEN



It's snow time

There are quite a few stages in *Pang* that will devour your money as it were winter bellbottoms during a May London Fashion Week (read: going out of fashion), and beating them is a case of clever strategy and expert timing – as the levels reset entirely when you snuff it, so bubble movement can be remembered (as long as you repeat your actions). The most challenging stage is probably Antarctica, as not only is it pretty open, but those platforms it does feature are at different heights, making bubble behaviour unpredictable. Even worse is the snow on the ground, which makes movement equally erratic.

IN THE KNOW

- **PLATFORM:** ARCADE
- **PUBLISHER:** CAPCOM
- **DEVELOPER:** MITCHELL CORP
- **RELEASED:** 1989
- **GENRE:** SHOOT-'EM-UP

What the press said… ages ago

MEAN MACHINES, 93%

The GX4000 version is probably one of the best conversions you'll see on this machine for a long while.

THE WORLD'S BEST CONSOLES MAG!
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What we think

Pang plays like a tasty soup of other arcade games but with nice soapy flavoured croutons floating on top. It's fun, frantic and incredibly addictive and boasts some fine home conversions too. What's not to like.

In the chair with...

MARK TURMELL

From sneaky Apple II shooters to huge arcade hits, Mark Turmell has created an envious array of best-selling titles and hasn't been afraid to enjoy the rewards of success. He tells us about the girls, the glamour and three decades of making games

"I WANTED TO be Mark Turmell," sang Dan Bryk on his debut album and it's not hard to see why. Mark's very first Apple II game, *Sneakers*, was a big hit for Sirius Software and by the tender age of 17, he had moved to California, was coding VCS games and driving a Porsche. Titles such as *Fast Eddie* and *Turmoil* caught the eye of the mighty Activision and he joined as it began developing for home computers. At the end of the Eighties, he moved into the arcade business at Midway and had colossal success with *Smash TV* and the all-conquering *NBA Jam* series. Mark currently works for casual gaming kings Zynga, developing titles for mobile devices

You have a reputation for hiding secrets in the games you've made, like the heads of US Presidents in *NBA Jam*. Are you a secretive person?

Definitely when it comes to games! Every game I've worked on I've tried to hide something, whether it's secret rooms or characters. I've even hidden games within other games. You think you know everything about a game and then boom, someone tells you something you didn't know about. That's part of the charm.

So when did you first encounter the charms of computer games?

It was 1976 and a friend of mine's father was a college professor. He brought home a little terminal that you could hook up to a telephone through a modem and access the mainframe at his university. It had paper output and there was a football which would type across the paper, "1st and 10 at the 20" and then it would print "A – long bomb, B – run up the middle…" and so on. You'd make a choice then it'd think for a little while and come back with "8 yards complete, 2nd and 2".

I was hooked! I was in the 8th grade and that game had such an impact on me I started taking computer classes at the local college. By the time I was 15, I had left high school and I was doing computer science at the college.

So you left school early to focus on computer programming?

Yeah, you should do four years in high school until you're eighteen but I only did two and went to college. I didn't even have a driving licence! Mom would drive me there.

You must have had supportive parents to get into computers in this way.

They got me an Apple II computer, I went into the basement and started plugging away with the sole intention of making a game and making money. They were curious as to what it was… my vision. My first game, *Sneakers*, came out when I was fifteen and I was getting royalty cheques through the door for $10,000 every month. I look back now and think, 'Wow, my parents must've been freaking out!' I didn't know that was an astronomical amount back then. They just said, 'We'll put this money into a bank account for you.'

Did having that kind of money as a teenager affect you?

Well, I did buy a Porsche when I was seventeen years old.

Nice. We presume *Sneakers* was inspired by the arcade games of the day?

Absolutely. *GORF* was out and lots of other space games. I wrote it completely in my basement, put my name on it and sent it Federal Express to Sirius Software. It was the clear leader in publishing Apple games. I got a call the next day saying, 'We got your package!' They sent me a contract and I was up and running.

Did you move to California to join Sirius at this point?

Not yet. I moved up to university and started on another Apple II game called *Beer Run*. It was a 'climb the building' style game, with ladders, guys chasing you and six-packs of beer left on the ledges for you to ▶

"All the fundamental lessons I've learned over thirty years in the videogame business apply 100 per cent today"

SELECTED TIMELINE

Sneakers (Apple II)	1980
Beer Run (Apple II)	1981
Free Fall (Apple II)	1982
Fast Eddie (Atari 2600)	1982
Turmoil (Atari 2600)	1982
Gas Hog (Atari 2600)	1983
Toy Bizarre (Commodore 64)	1984
Fast Tracks (Commodore 64)	1986
Smash TV (Arcade)	1990
Total Carnage (Arcade)	1991
NBA Jam (Arcade)	1993
WWF Wrestlemania (Arcade)	1995
NBA Hang Time (Arcade)	1996
NFL Blitz (Arcade)	1998
NBA Showtime (Arcade)	1999
Arctic Thunder (Arcade)	2001
MLB Slugfest (Multiformat)	2002
Midway Arcade Treasures 2 (Multiformat)	2004
NBA Ballers (Multiformat)	2006
TNA iMpact! (Multiformat)	2008
Bubble Safari (iOS)	2012

DOINK
87
UNDERTAKER

» Bret 'The Hitman' Hart with Mark 'The Hair' Turmell, flanked by graphic artists Josh Tsui (left) and Sal Divita.

collect. Sirius had some deal with a beer company. It was an early example of advertising in a game! I started on a third game called *Free Fall*, which was a bit like *Frogger* except you were hanging on a girder and dropping down the screen, but then Sirius told me it was going to start doing Atari VCS cartridge game. That prompted me to drop out of university and move to California.

That must have been quite daunting for a teenager?

I was super shy and super geeky. I was a virgin till my 21st birthday! For me to move out there was very scary but what made it okay was Sirius had hired a few of these young kids to come out and make games. Back then, there was all this hoopla about 'computer whizzkids'. I was featured in *People* magazine about this whizzkid thing and I got all these phone calls from other magazines but when I told them I was nineteen they said, 'Oh you're kind of past it now.' I felt I was old and my career was almost over! It took me a few years before I could see these fifteen year olds were burning out and didn't have the experience and patience to follow up with more games. It was only then I got over the trauma of my extreme age…

You were certainly prolific and produced two VCS games in 1982, *Fast Eddie* and *Turmoil.*

They were crazy times. I started *Fast Eddie* in March and it was done and being shown at the CES in Chicago in June. By then I'd already started on *Turmoil*. The speed you could make games… I mean, there was only 4K of memory and 128 bytes of RAM!

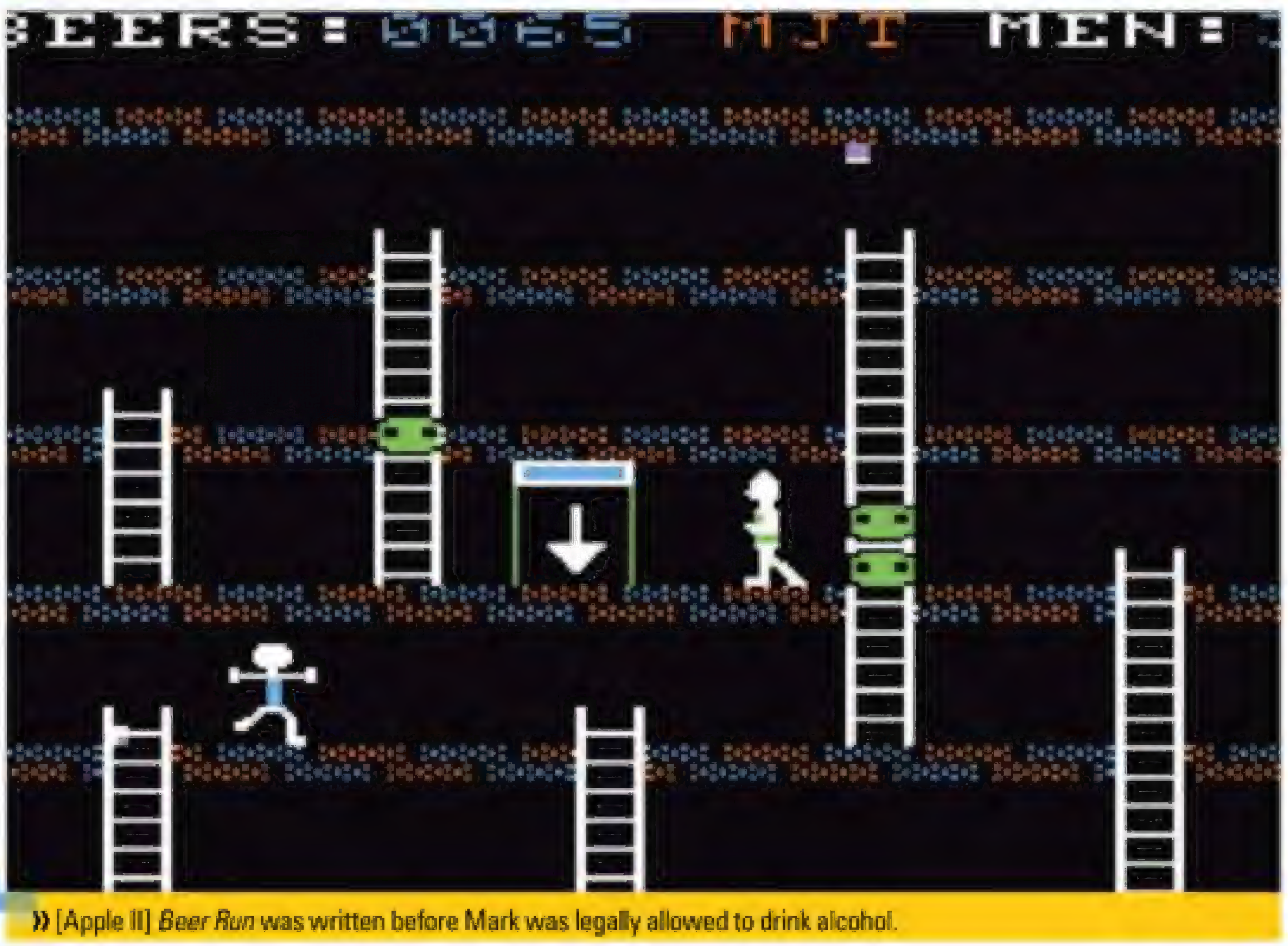
Isn't the VCS notoriously difficult to program for?

The toughest thing was what I was used to, the Apple II, had memory you could store to. The first question I had as I rolled up my sleeves on my first day in California was, 'Where's the screen memory? How do I turn an object on on-screen?' They told me there wasn't any. I'd have to count the cycles as the raster writes to the TV screen. I was like, 'Whoooah, wait a minute…' Man, it was a brave new world for me but when you're dedicated and you want to make a game, you work it out. And it was a blast. The VCS was a great little platform to do cool things on.

Did you enjoy handling every aspect of a game?

Absolutely. I've remained a control freak to this day!

> ❝ Sneakers came out when I was 15 and I was getting royalty cheques through the door for $10,000 every month ❞



» [Apple II] *Beer Run* was written before Mark was legally allowed to drink alcohol.

Your second VCS game was called *Turmoil*. Is that a play on your surname?

Yes! I had it on the licence plate of my Porsche too! I was living my life on the edge during those years, too many girlfriends and stuff, so my life always felt in turmoil. The game was so fast, it was a kind of sensory overload. It was the game that caught the attention of David Crane. Activision called me up and said 'We want you to make games for us.'

We understand it wasn't the only offer you got around this time. Didn't Microsoft approach you?

I got an invite to Steve Wozniak's [co-founder of Apple] wedding. I didn't know why I was invited but I wasn't going to turn it down! Turns out he was trying to pay tribute to the Apple community. When I got there, he told me when he was recovering in hospital from a flying accident *Sneakers* had been his favourite game.

Bill Gates [founder of Microsoft] came up to me at that party, introduced himself, and said 'Mark Turmell, I love your games!' He'd been writing games too – before *Microsoft Flight Simulator* he'd done a decathlon game and he was really into games! He told me he'd started this small company up in Seattle, with about a dozen employees, and invited me to join him out there. I asked what they were doing and he talked about Tiny BASIC.

It didn't make sense to me that he was trying to make an easier programming language. By that stage I had graduated to doing everything in assembly because of the improved performance. I told him I was working on these VCS games and that was the future! I turned him down.

So you could've been Microsoft's 13th employee and a multi-millionaire by now?

Well, I was so into games, maybe I would've had an impact on Microsoft, pushing it towards VCS development and the videogame world… this was before the crash, so in hindsight, I think my influence could only have been negative. Microsoft may never have achieved its success if I had been involved!

You could have changed the history of computers!
Every time I told the story during the Eighties, it just kept getting worse. All the employees were becoming millionaires and I thought what a mistake I'd made. Then my wife would say, 'Yes, but Mark, you wouldn't have met me.' And I would be like, 'Oh right, yeah.' She's my ex-wife now.

You joined Activision in 1983. What was the atmosphere like there?
Awesome! There was a guy called Jim Levy who was a real visionary and David Crane and Steve Cartwright were just coming up with good ideas all the time. But just like the industry today, things were changing. They were deciding whether they should be doing disk-based games not cartridges. There was upheaval in the market and I came right in the middle of that.

Is that why your first game for Activision, *Toy Bizarre*, was released for home computers?
Toy Bizarre was their first disk-based game. You could get it on cartridge or disk for the C64. It was a departure for Activision as they moved onto new platforms, away from cartridge-based systems.

You continued producing games for home computers and in 1986 you wrote *Fast Tracks: The Computer Slot Car Construction Set*, which gave players the tools to design their own circuits.
That's another game I'm really proud of. The interface let you grab parts and scroll around the track, all with a joystick and one button, to layout and then race on your own tracks. The game I'm working on now [also] has user-generated content at its core.

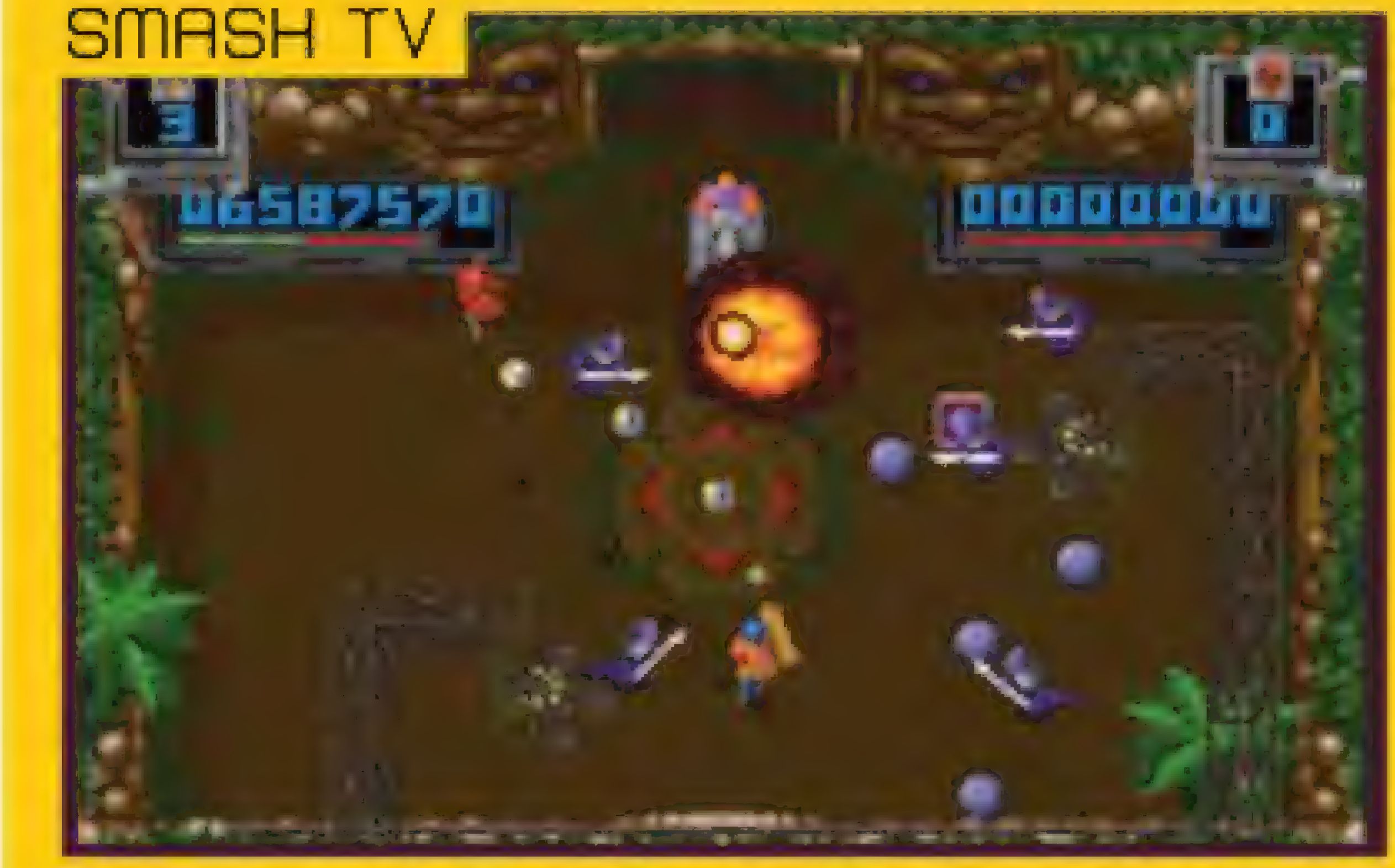
Another example of your prescient thinking was your involvement with the NEMO project, which is best remembered for spawning the infamous game *Night Trap*.
Rob Fulop, David Crane and I, we were the videogame guys on that

▶

FIVE TO PLAY

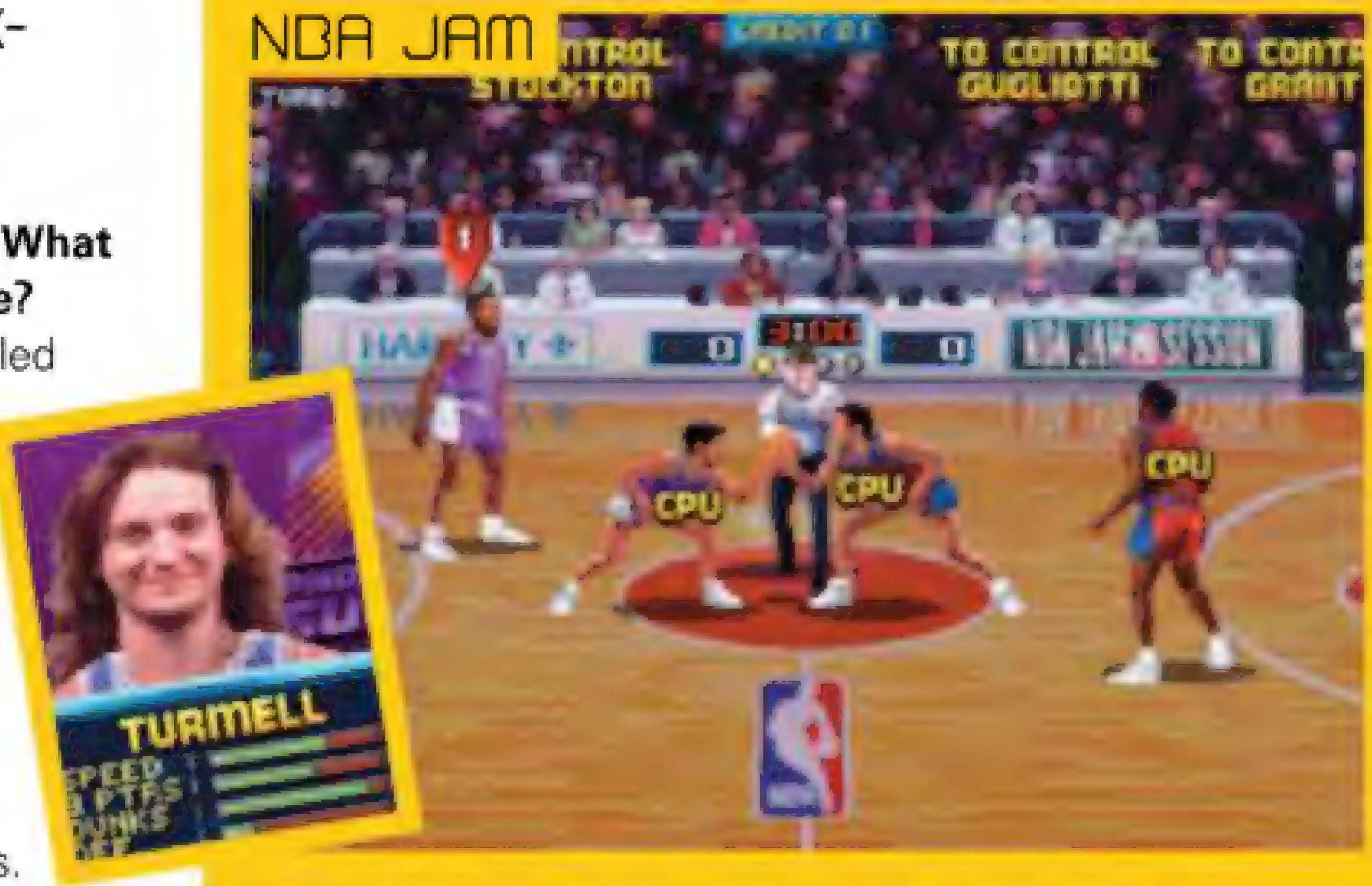
Fast-paced gameplay is a trademark of Mark's games. Here are five of our favourites that you simple must seek out

SMASH TV



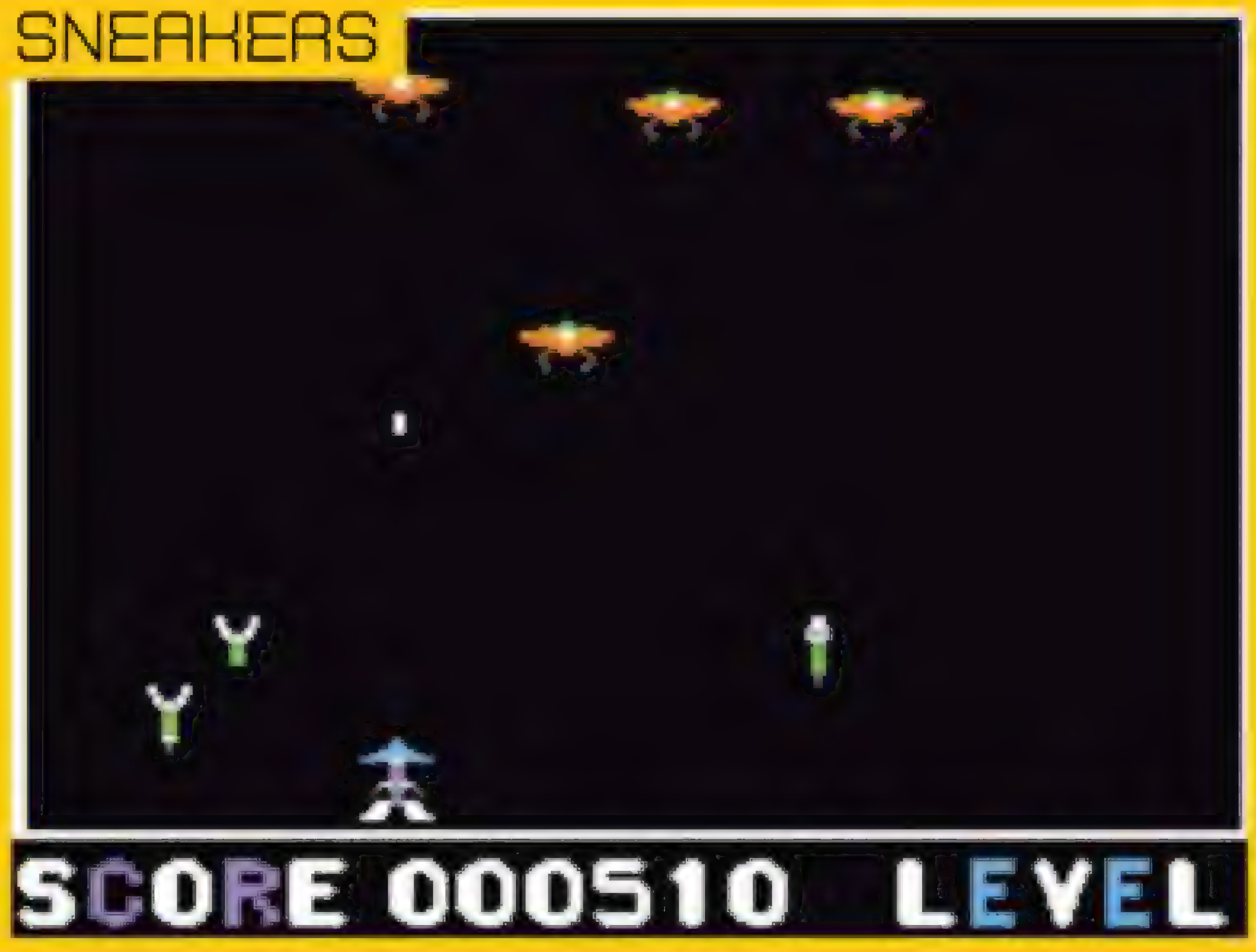
AS A HUGE *Robotron* fan and an accomplished player of Eugene Jarvis and Larry De Mar's superlative shooter, Mark was delighted to revive the dual-joystick set up for his first game for Midway. *Smash TV* manages to capture the claustrophobic atmosphere and relentless challenge of its inspiration but adds power-ups, multiple routes and a marvellous co-operative mode. A compelling arcade cabinet, it spawned some fine home conversions, including creditable efforts for the C64 and Spectrum, proving there was still life in the 8-bits in the early Nineties. While we particularly enjoyed the mindless carnage caused by the protective circle of ninja blades, we always thought the game was a subtle satire on rampant consumerism. Was Mark trying to get players to think as well as blast? "Not really", he laughs. "We were trying to put some tongue-in-cheek humour in there. It was set in the future and we were trying to show the way game shows were heading." If the next series of *Total Wipeout* adds blades to the Terror-Go-Round, you'll know it's because the producers grew up playing this.

NBA JAM



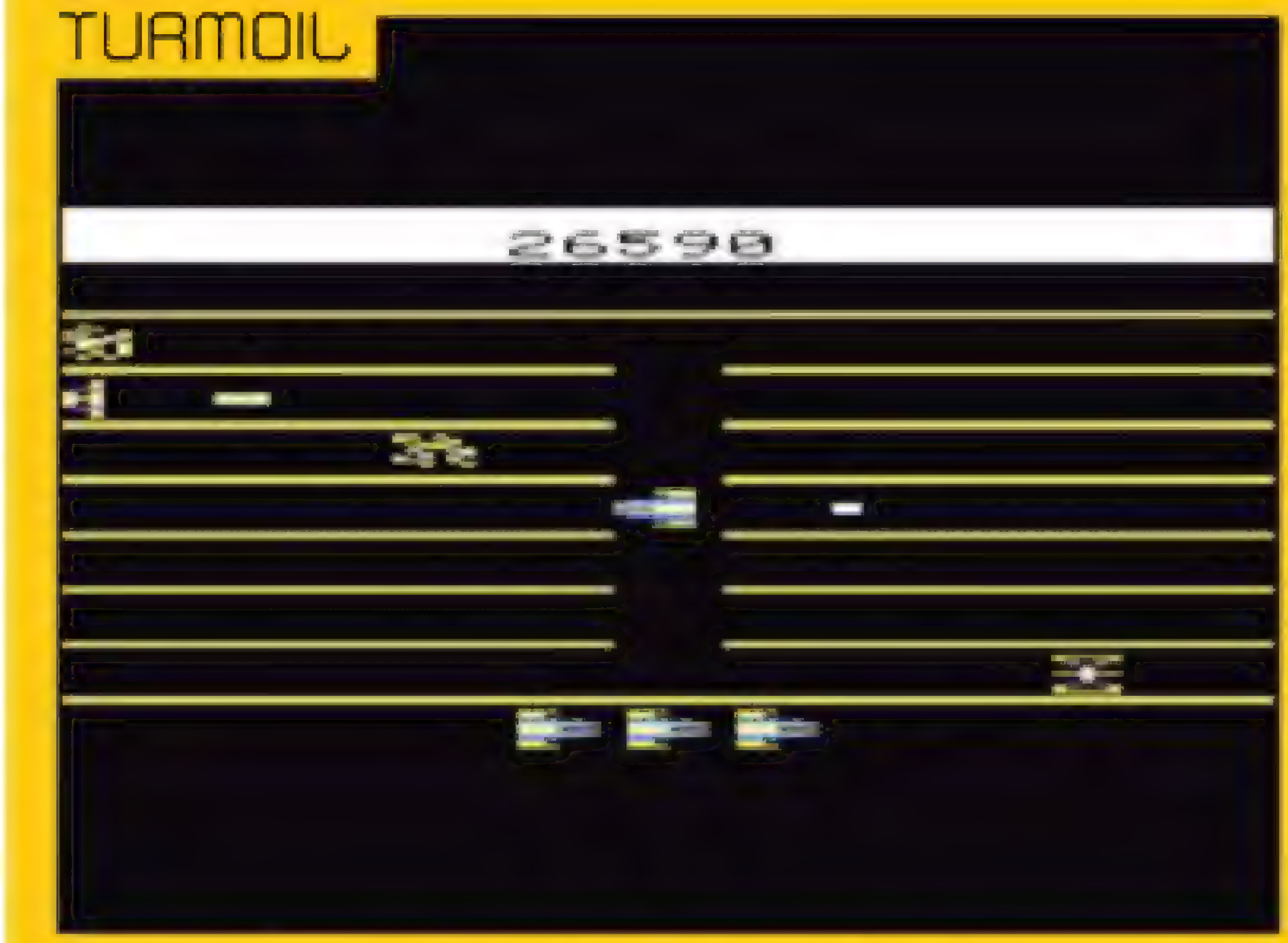
NOT ONLY MARK'S biggest money-spinner but one of the highest earning arcade machines of all-time, *NBA Jam's* success was built around a simple premise: take a hugely popular sport, forget realism and just focus on the fun bits. And it really, really worked. Two-on-two basketball had been done before but never with such a tasty mix of fast footwork, sharp passing and gravity-defying dunks. Instantly accessible yet with subtle tactical nuances, the urge to put in another coin to play the next quarter was irresistible, especially when you and your teammate were dominating the court in a crowded arcade. Crammed full of secrets, including the digitised heads of the development team and a whole tank battle game, look out for a full Making Of *NBA Jam* in a future **Retro Gamer Collection**. Boomshakalaka!

SNEAKERS



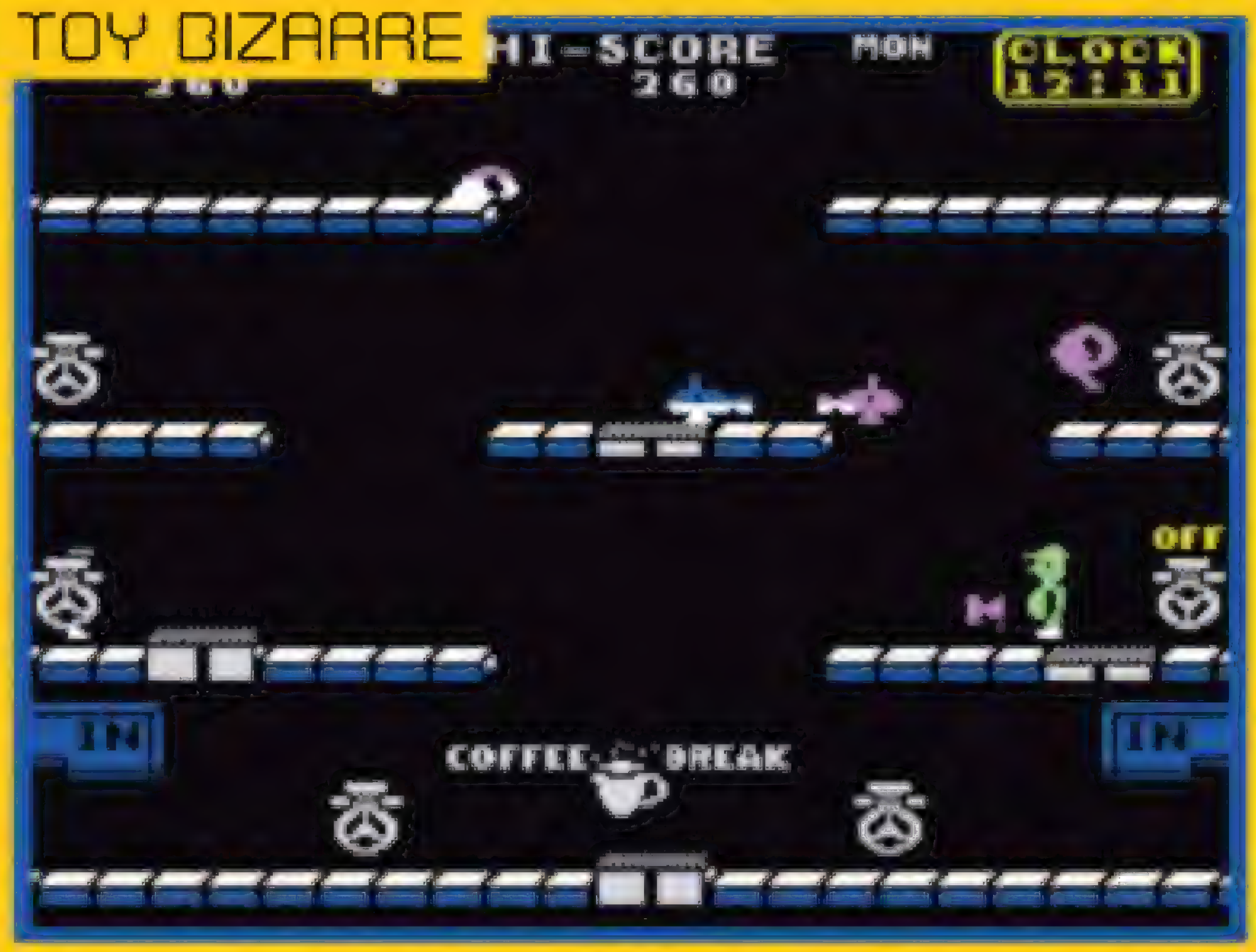
WRITTEN WHEN HE was just fifteen, Mark's first published title appeared on the Apple II and became a favourite of the machine's designer, Steve Wozniak. The eight attack waves feature dive-bombing Fangs, sinister Cyclops, an asteroid field to negotiate and, in a nod to both *Star Wars* and the location of the computer classes he was taking at the time, the H-Wings. It reminds us of Rob Fulop's *Demon Attack*, in that it took the basic 'left-right-shoot' format laid down by innumerable late Seventies and early eighties coin-ops and translated it for the home market with real aplomb, adding a distinct personality of its own. The titular Sneakers, who appear in the opening level, were relatively benign, smiling little creatures. They also made a return in Mark's first VCS game, *Fast Eddie*.

TURMOIL



THIS FRENETIC BLASTER took its title not only from his last name, but also the tumultuous lifestyle Mark enjoyed after his move to California in 1982, and aptly reflects the kind of chaotic fun he was clearly having. It bursts with colour, boasts some impressive animation and at higher levels becomes a blur of bullets and baddies. You have to keep moving and shooting or it's game over pretty quickly! Though it was primarily designed to push the limited VCS hardware – keeping enemies funnelled in horizontal tunnels allowed some primitive sprite multiplexing to increase the alien count on screen – a version did appear on our beloved VIC-20. "That one was wildly fun," enthuses Mark. "Another guy came in who was responsible for porting my VCS games to the VIC but I did work with him to add some bells and whistles."

TOY BIZARRE



MARK'S FIRST GAME for Activision also saw his return to coding for home computers after his VCS days. Whilst it obviously owes a debt to the original *Mario Brothers* arcade game, *Toy Bizarre* has its own distinct character, as you hop from platform to platform, bursting balloons, retrieving rogue toys and avoiding the evil clockwork Hilda. "I'm really proud of it," says Mark when we asked him about the rather obscure Commodore 64 game. "The great thing about the game is it gets fast. Lightening fast. As you get on to higher levels, it has this mode so once you've cleared the level, you have a few seconds to pop any remaining balloons. It became a really challenging play mechanic and it's a lot of fun." Although *Toy Bizarre* is one of Mark's lesser known games, it's certainly worth playing with.

NUMBER *CRUNCHING

3: Number of baskets a player has to score in a row in NBA Jam to trigger the 'on fire' mode

7: Number of players per side in the original NFL Blitz

8: Number of alien attack waves in Mark's first game, Sneakers

220: Number of keys required to enter the Pleasure Domes in Total Carnage

1999: The year in which Smash TV's ultra-violent gameshow is apparently set

10,000: Points required to earn each extra life in Toy Bizarre. You'll need them

40,000: Mark's starting salary in dollars on joining Sirius Software, aged seventeen

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zynga.com/jobs
BUBBLE SAFARI

» Mark's first game for Zynga was *Bubble Safari*, given the billboard treatment here.

project. When I joined, it was driven by Hollywood stuff, like a Jane Fonda workout video, where the video could branch to different tracks. I was really enamoured with the potential of the technology and became the most vocal supporter of this new approach to making games. I wanted to get more of the magic of traditional videogames into that package. I think we did a pretty decent job, not just with *Night Trap* that Rob really spearheaded, but also on *Sewer Shark* that eventually came out the with Mega CD. It was a sad day when the funding ran out for that.

What did you think of all the heated controversy surrounding *Night Trap*, with the game being cited in Senate hearings as 'sick and shameful'?

When that all happened in the early Nineties, I'd left Hasbro and gone to Midway. My first games there were *Smash TV* and *Mortal Kombat* which had all the violence and they got lumped in with *Night Trap* and the whole publicity horror show. I had my fingers in all those pieces of it!

Talking of horror, is this the right time to discuss your old hair style? That was quite a mane…

[laughs] I went a little bit Hollywood there. Hasbro was involved with movie licences and I was working on *Police Academy 4.5*, an interactive movie for the NEMO project. I got a taste of how Hollywood worked, being on these movie sets. Remember, I'd only started having girlfriends for a handful of years. That's the time I really grew up – my formative years. I kind of went for this Robert Plant look.

We think you look more like Aerosmith.

I met Aerosmith when they came in to Bally Midway [to be digitised for the arcade game *Revolution X*]. They asked for alcohol and pornography before they'd get started. And when The Undertaker came in to shoot his scenes for *WWF Wrestlemania*, he refused to work unless he had a bottle of Jack Daniels next to him.

Was being a high profile videogame programmer like being a rock star at all?

It really was! At Activision, if we were all heading to a Consumer Electronic Show, they wouldn't even let us fly on the same plane just in case it crashed! It was crazy but then our games were selling a couple of million cartridges at $50 a time, so programmers became very valuable. Everybody there was making hundreds of thousands of dollars and we were treated like stars. I even got featured in *Seventeen* magazine as Bachelor of the Month! [laughs] I started getting all these letters from girls after that. It definitely strokes your ego.

So it was all fast cars and living the high life?

Absolutely! I went from this shy kid who couldn't hold a girl's hand to this wild man, driving fast cars and getting with actresses on movie sets. I did date Janet Jones [*Playboy* cover girl, March '87] but she ditched me and married Wayne Gretsky. A guy called Dan Bryk wrote a song called *Mark Turmell 2.0* because he grew up playing my games and reading these articles. He had this vision of the cars, the women, the drugs… this was the life he wanted [laughs].

When the NEMO project was cancelled, you left Hasbro and joined Midway, where you began work on *Smash TV*.

I'd always been a fan of arcade games, especially the games of Eugene Jarvis, so I came out to Chicago, told the guys there *Robotron* was my favourite game of all time and my dream was to revive the dual joystick controls that he had pioneered.

Does updating a game that you love pose any particular difficulties or challenges?

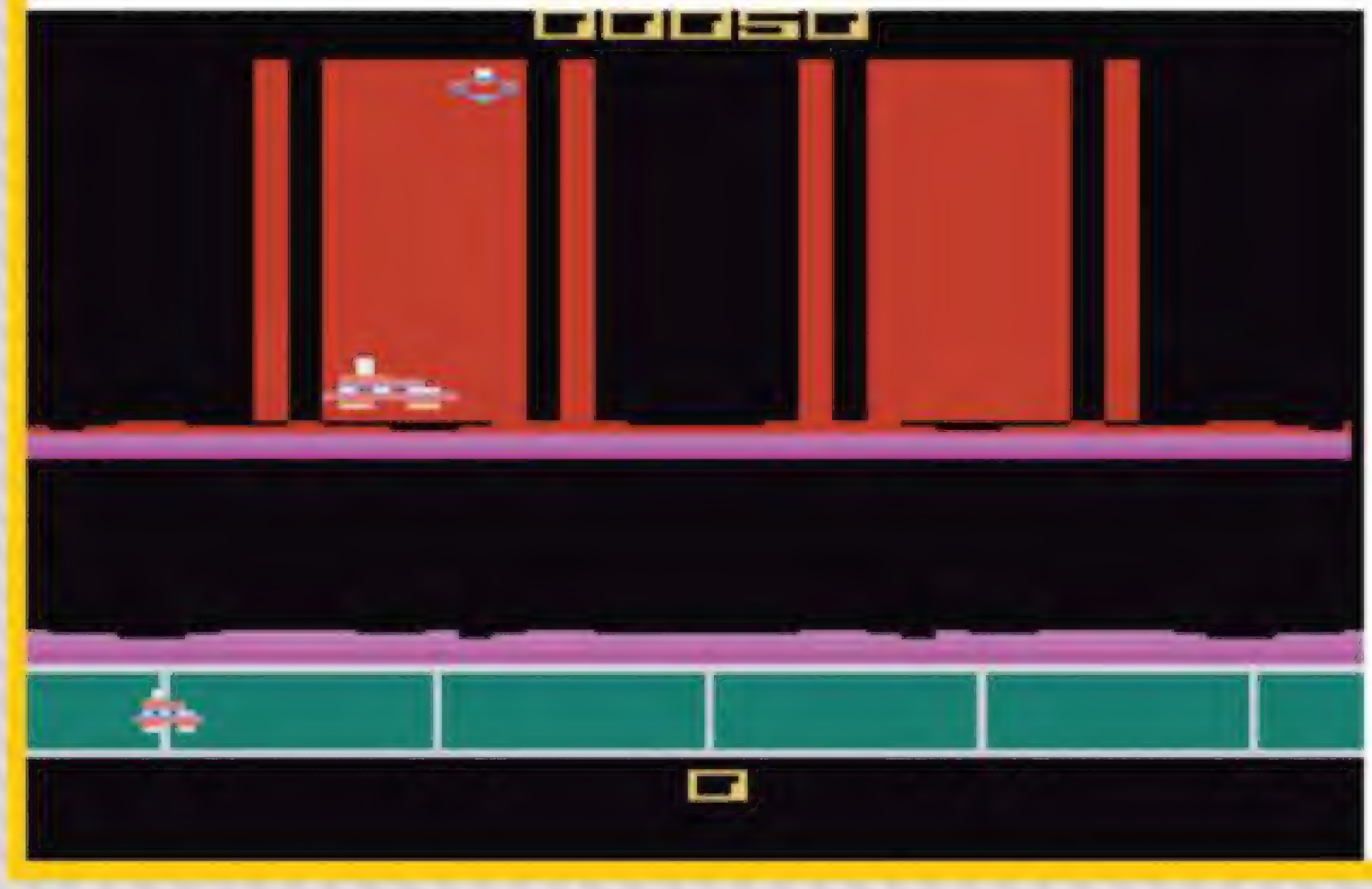
There were no cons in my mind. It wasn't really a sequel, I was just trying to leverage the play mechanic. It only took me a week or so of being there to get the mechanic of running and shooting in 360 degrees. That is so beautiful, the game was fun right from the get go. I hired John Tobias, a young artist just out of high school, who was pegging walls down by the subway. He created the art for the characters and went on to do the *Mortal Kombat* series. A great artist. He's still my partner now on my current project. We put the band back together!

Please tell us if it was ever possible to access the elusive Pleasure Domes.

That's a Turmell scam right there! It goes back to your first question about secrets… in *Smash TV* there were keys you could pick up as you played through and I put in an ending that said, 'You are a great *Smash TV* player but you didn't pick up enough keys to enter the Pleasure Domes'.

We had people going back and playing the game over and over trying to get enough keys but lo and behold, there were no Pleasure Domes! I got into some trouble because operators started calling us saying they had angry players in their arcades. By this time, *Total Carnage* was well under way so I added some Pleasure Domes to the end of that game. [NB: Later revisions of the *Smash TV* ROM had Pleasure Domes added to the game.]

» [VCS] Mark's last game for Sirius was *Gas Hog*, a *Moon Patrol* homage on Spectravision.



Was Total Carnage a sequel of sorts to *Smash TV* then?

We felt we could've done more with *Smash TV*. We had the Gulf War and Saddam Hussein and all the ridiculous things on the news with us bombing baby milk factories and stuff. We wanted to take the play mechanic but add scrolling and this war theme. A game called *MERCS* had come out in the arcade and done really well so we thought it was a viable genre, so we spent the ten months after *Smash TV* working on it.

***Mortal Kombat* was produced by Midway around this time. Did you have any input on that game?**
A little. Back in 1992, digitised graphics were the new high-tech thing, so we were spearheading techniques to videotape live action and use it in videogames. John [Tobias] was doing it for *Mortal Kombat*, I was using it for *NBA Jam* and we shared some of the tools.

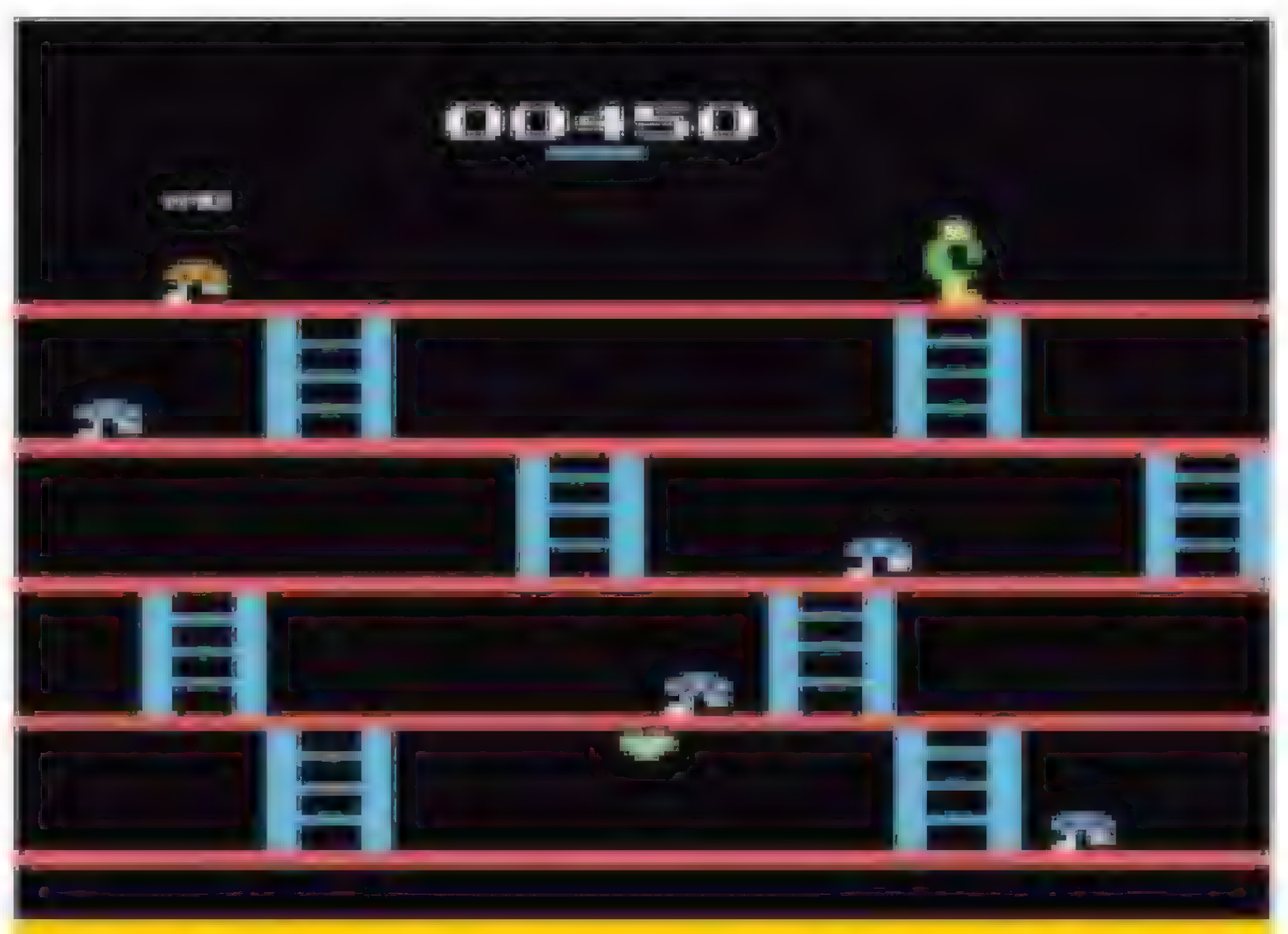
Was *NBA Jam* a dream project?
Oh yeah. I've always been a huge fan of the *NBA*. When I started out making games, making money on the VCS, my dream was to own an *NBA* franchise. Back in the early Eighties, they weren't that expensive! This was my first opportunity to make a sports game and the gameplay we created allowed it to make more money than any other arcade game. Locations were making over $2400 a week in the cashbox… they couldn't empty them fast enough!

It certainly was a huge hit, but we just wondered if the success meant you felt rather trapped into churning out sequels and updates?
Yeah, it definitely got old. I think *NBA Hangtime* actually had superior gameplay and better tuning but at that point, the mechanic was getting stale. It wasn't until my next project after that, my first 3D project, *NFL Blitz*, when I'd moved from assembly language to C++, that all the lessons I'd learned over the years came back to the surface. That's my favourite game of the ones I've developed.

» Mark on the *NFL Blitz* assembly line.

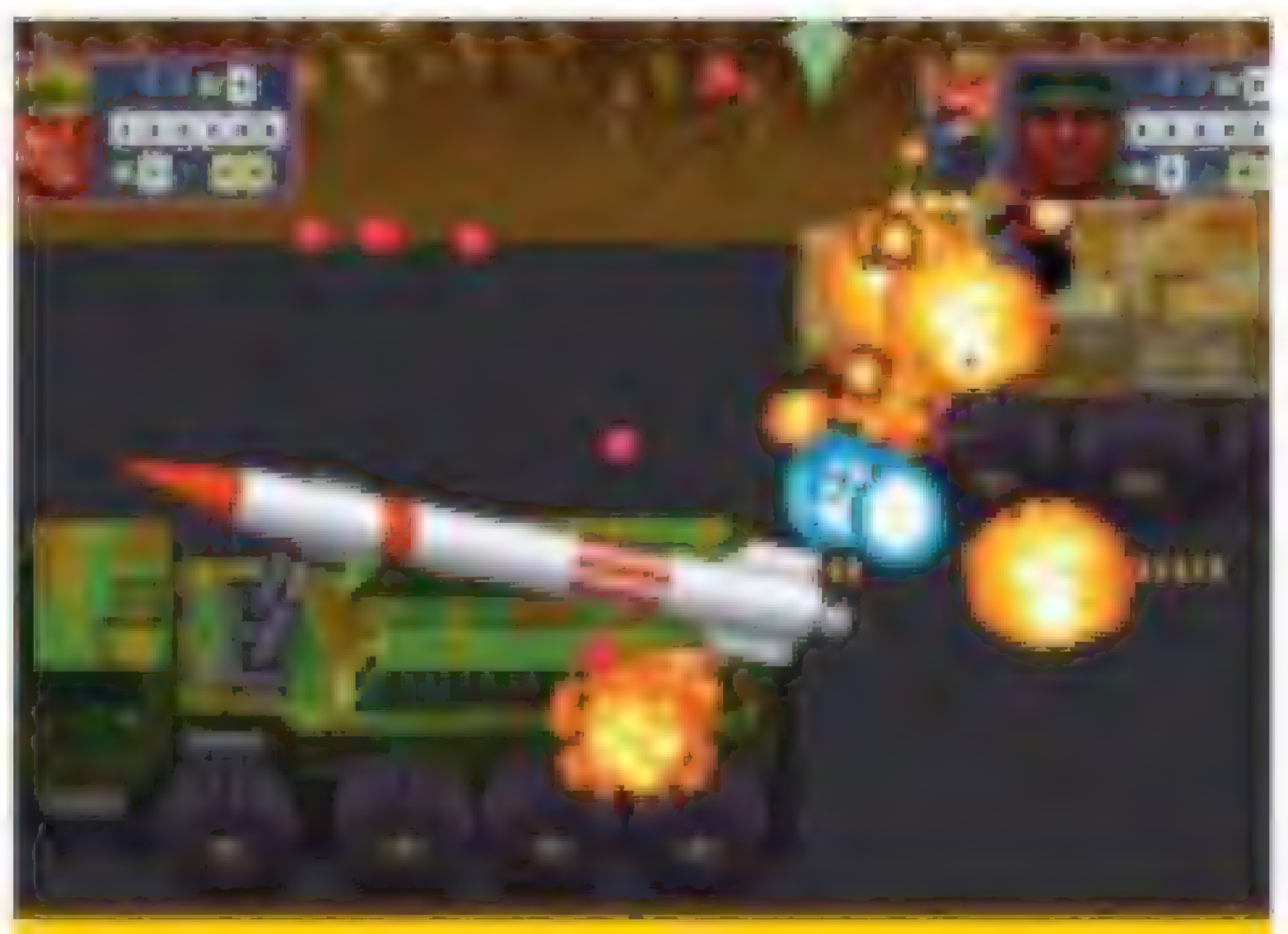
> " Bill Gates offered me a job at Microsoft in 1982 but I turned him down. I told him I was working on these VCS games and that was the future! "

Since the Nineties, you've done videogame versions of baseball, ice hockey, and basketball. Do you ever feel pigeonholed as the 'sports game guy'?
No, I never felt that. I was a real sports fan. I became creative director for EA Sports and that was a beautiful, natural fit for me. I loved all the competitive, head to head gameplay and refining the *NBA Jam* and *Blitz* properties. I could do that for a long time…



» [VCS] The Sneakers themselves made a crafty comeback in Mark's first VCS game, *Fast Eddie*.

So why did you leave EA to join Zynga and start making casual games for mobile devices?
I recognised the tidal wave of change in the videogame business. It's not just the shift away from consoles to mobile devices and tablets, but also to the 'free to play' model. When you think about the future of games, you don't think about the $50 dollar product or even the $10 product. We're pretty much at the point where no-one thinks about the 99 cent product. Everything is freeplay and micro-transactions. That's going back to the arcade days, when it cost a quarter to play and you had to hook players enough to put in that second quarter. A couple of years ago, I woke up and recognised the change was happening and I wanted to be a part of it. EA is really good at recognising that too but it takes a long time for a big company to shift gears. Zynga had that way of thinking from day one and no one is better positioned at this moment to ride that wave.



» [Arcade] *Total Carnage* transposed the violence of *Smash TV* to the violence of American Imperialism.

Your first game for Zynga was *Bubble Safari*, which you've recently updated with *Bubble Safari Ocean*. Despite being in the business for three decades, isn't this your first puzzle game?
It is! But one of my top ten games of all time is *Bust-A-Move*. There's something magical about matching colours and looking for different combinations. I've got a lot of fresh ideas too. Imagine going head to head, say matching cards to make the best poker hand, or a military theme, or a co-op theme where you're playing on the same board. There's a lot of room for innovation!

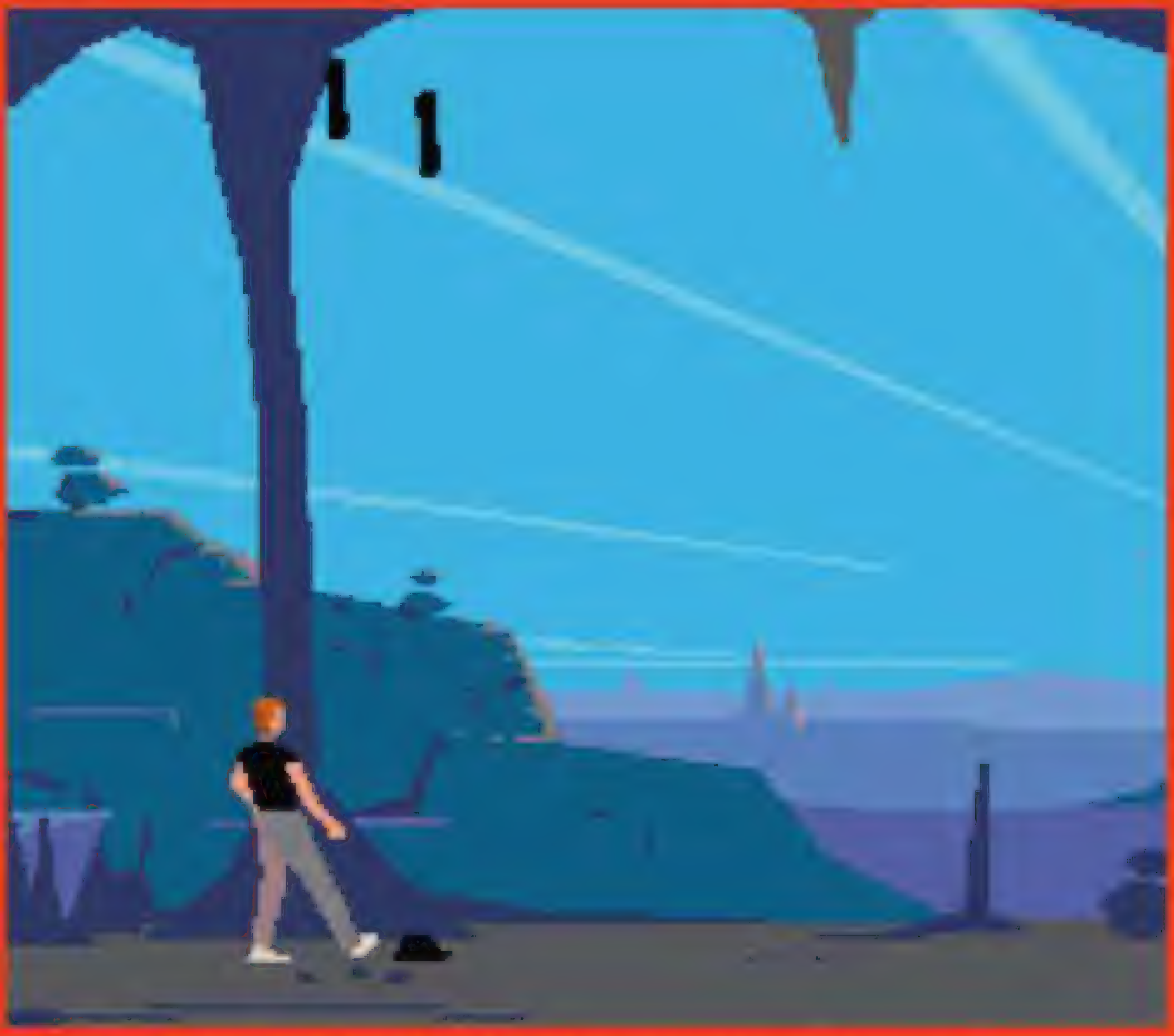
Does it feel like the old days, making small, accessible games like you did for the Apple II and VCS?
I've come completely full circle. The focus on gameplay, the micro-transactions of the arcade business, holding players hands in the mass market, making them feel good and powering them up… it's amazingly similar. All those fundamental things I've learned over the years apply 100 per cent today. The business can change so much but the one thing that stays the same are those mechanics, those lessons we learned thirty years ago.

Minority Report

We've had several readers asking for Mega-CD coverage recently. So many, in fact, that we decided to once again play through some of the finest games that the ill-fated Mega Drive add-on had to offer…

Special MEGA-CD Roundup

16-BIT
MEGA DRIVE SEGA
MEGA-CD
SEGA



[Mega-CD] You can't hear it here obviously, but the new score is incredibly atmospheric

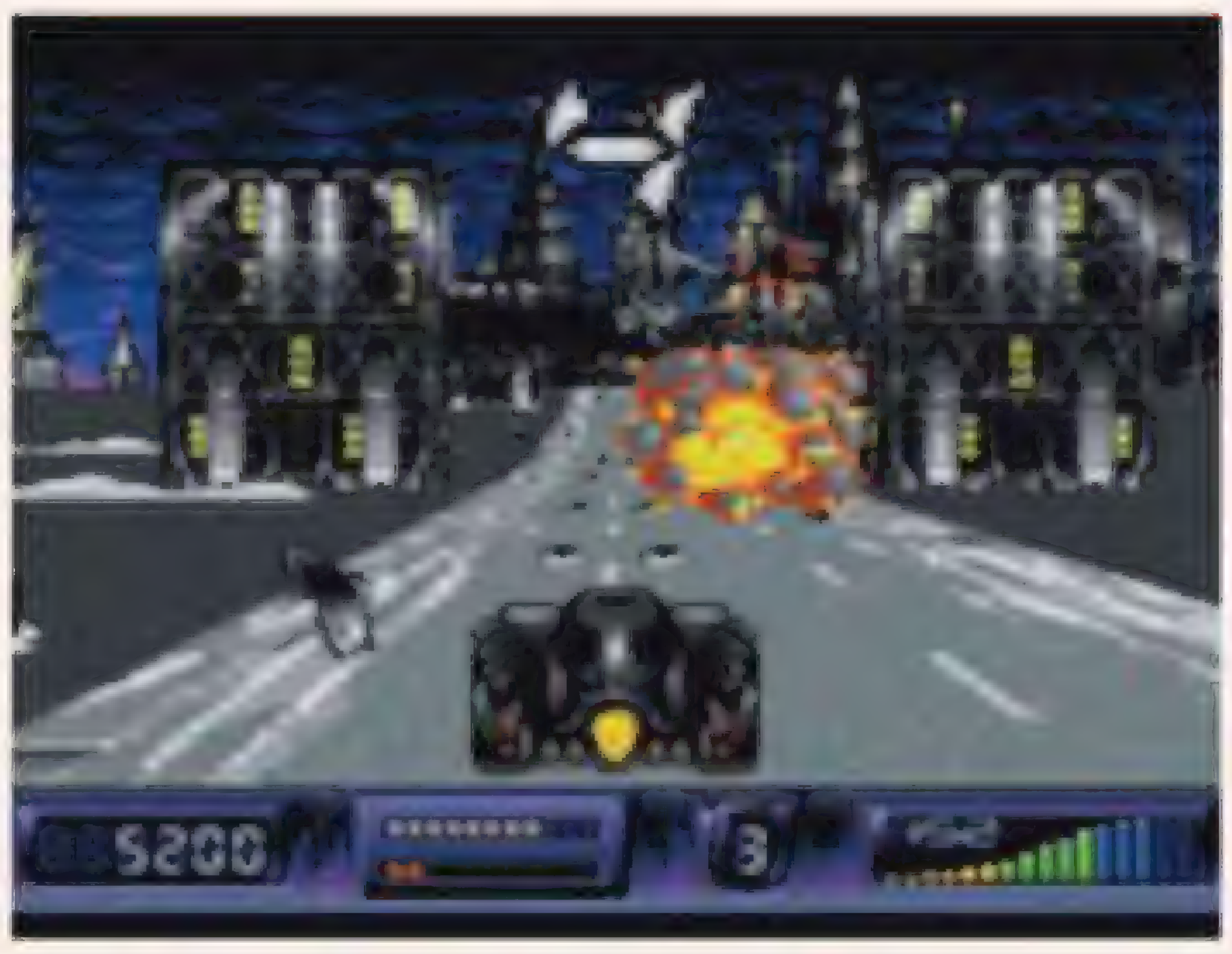
HEART OF THE ALIEN

■ DEVELOPER: INTERPLAY ■ YEAR: 1994

■ **Eric Chahi's *Another World* was an incredibly popular game upon its release, eventually getting ported to countless console and home computers at the time. In fact it's still getting remastered and re-released today, with new PC and iOS and an impressive homebrew Jaguar effort being the most recent examples, though we're sure they won't be the last. It's rather amazing then that after all its success, Interplay decided that its sequel would be released on just a single console, and a console add-on at that. It seems an astonishingly backwards decision for a game that sold over a million copies during the Nineties, but that's what happened, which is handy in a way, as it makes for a delightful (if rather unpolished) gem with which to open our article.**

What's interesting about *Heart Of The Alien* is that it's actually two games in one, as it also includes Eric Chahi's original award-winning game in addition to the exclusive sequel. It's an excellent port as well; and while it doesn't offer any new FMV intros or enhanced visuals over the Mega Drive version, it does feature a brand new soundtrack by Jean-Francois Freitas. Eric was directly involved in the new soundtrack and his assistance is easily noticeable, with the soothing music doing a far greater job of matching the onscreen action, making the game feel far more cinematic as a result.

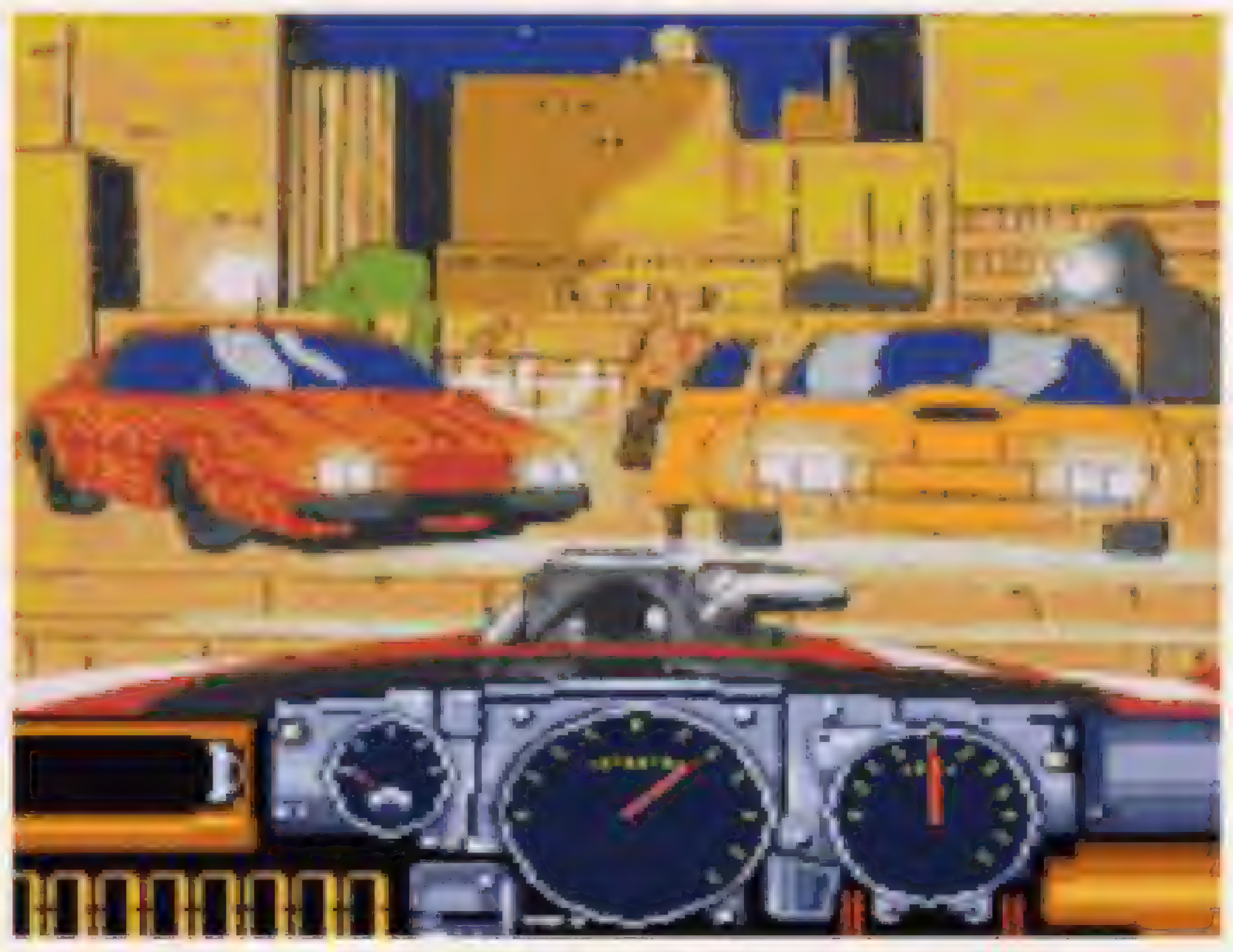
Sadly, *Heart Of The Alien* isn't quite up to the same standards as *Another World*, possibly due to Eric not having as much involvement as he did on the original game. The pacing isn't quite as



» BATMAN RETURNS

■ DEVELOPER: MALIBU ■ YEAR: 1993

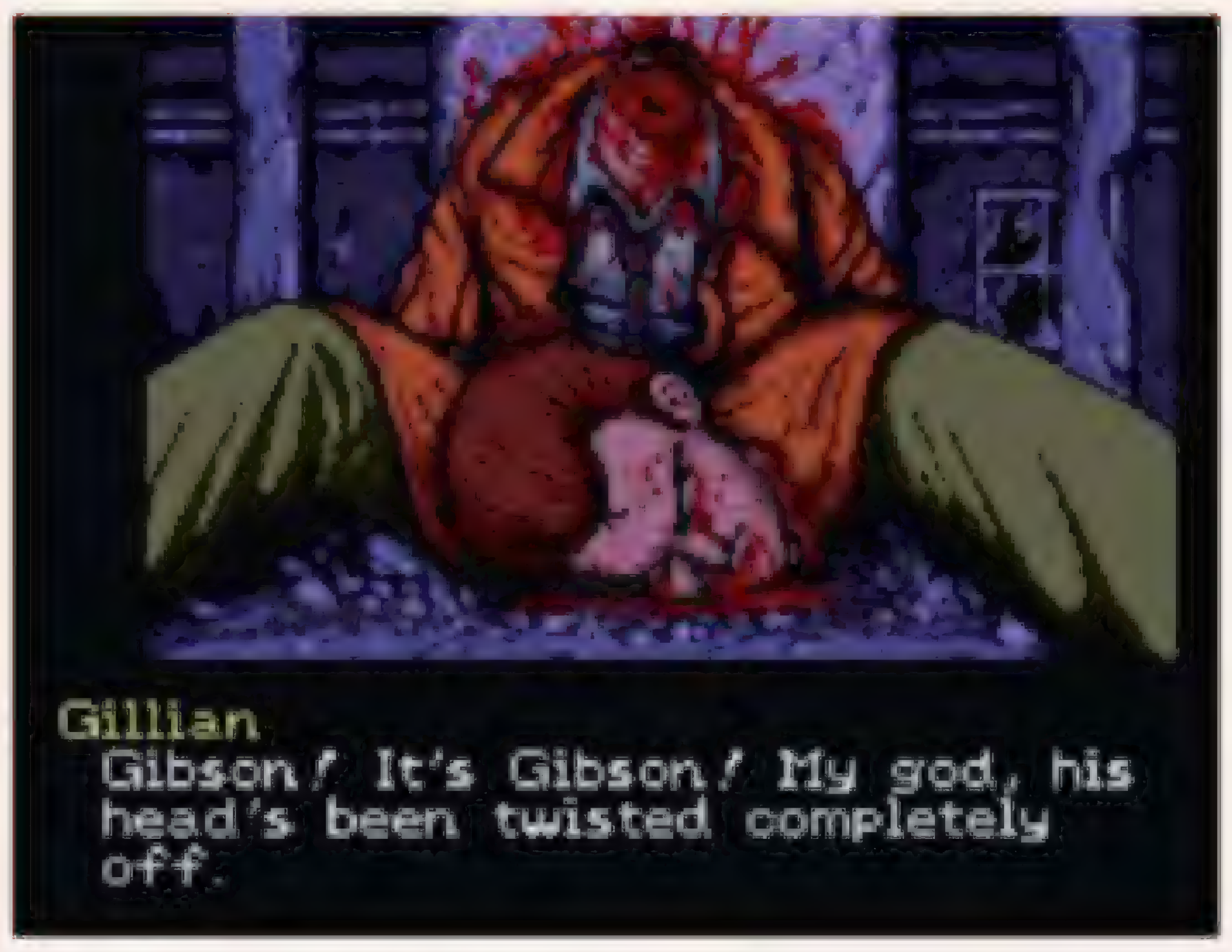
■ **This enhanced Mega** Drive port by Malibu is a game of two halves. It features all the platforming sections found in the original Mega Drive game, meaning it's a tough platformer with rather ugly visuals. Stick with it though and you're rewarded with some fantastic driving sections that boast stunning visuals and some supremely impressive sprite-scaling effects. Jeff Godfrey, James Maxwell and John O'Brien do a fantastic job with these fast-paced action sequences, and it's something of a shame that Malibu decided not to take the entire game down this more exciting route. The icing on the cake is a great new rearranged soundtrack by Spencer Nilson.



» ROAD AVENGER

■ DEVELOPER: WOLFTEAM ■ YEAR: 1993

■ **There are lots** of FMV games on Sega's Mega-CD, but this hilarious effort from 1993 remains one of our favourites. Coded by Wolfteam, it's actually a port of Data East's *Road Blaster*, which was first released in arcades in 1985. Like many FMV-based games, the actual gameplay is fairly limited, displaying on-rails sections and giving you *Dragon's Lair*-style prompts that you must continue in order to finish each stage. While the gameplay is obviously limited, the cheesy rock soundtrack, exciting backdrop – you're racing street gangs whiles seeking revenge for your dead girlfriend – and relatively snappy pace is what makes it so much fun to play.



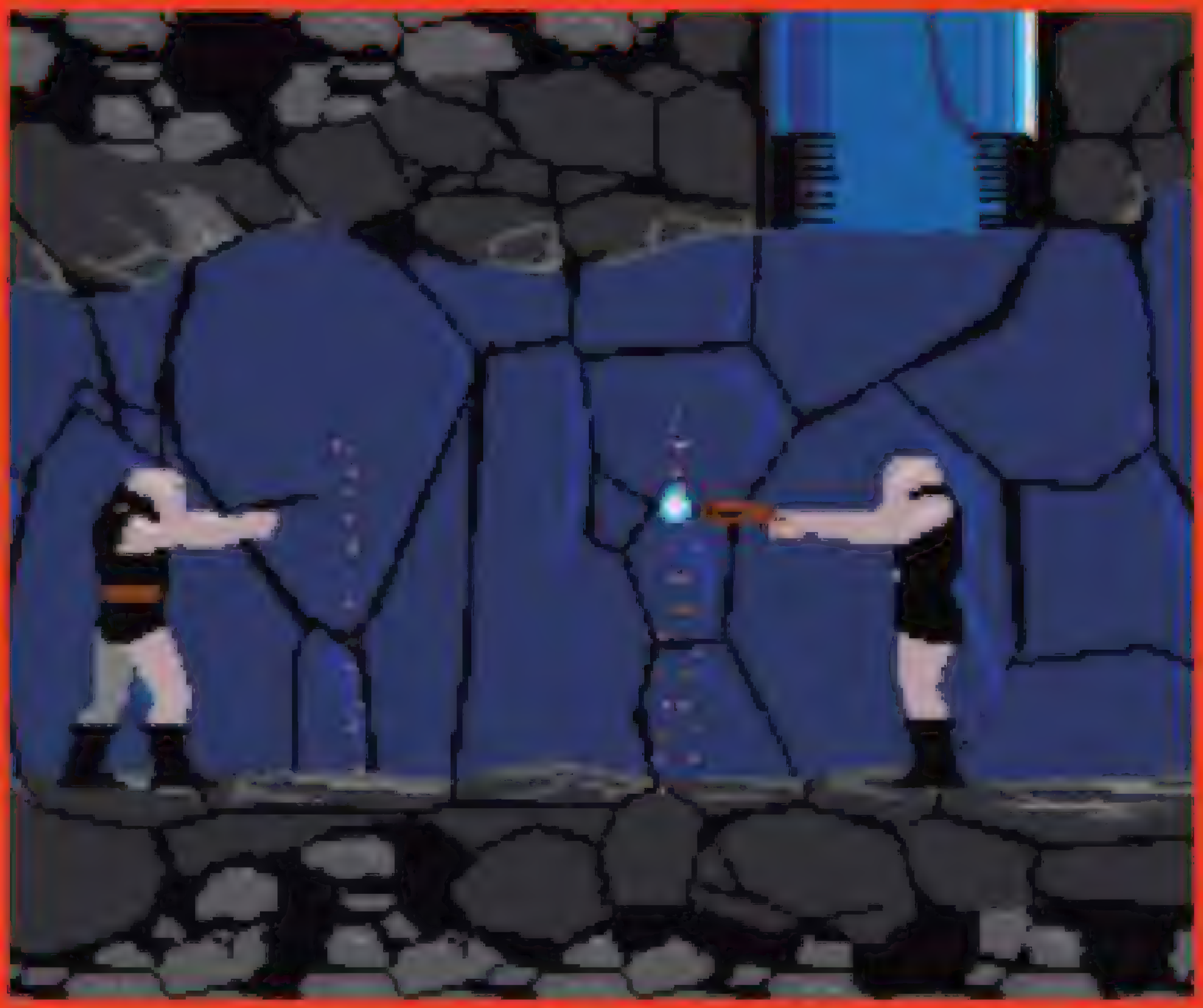
Gillian
Gibson! It's Gibson! My god, his head's been twisted completely off.

» SNATCHER

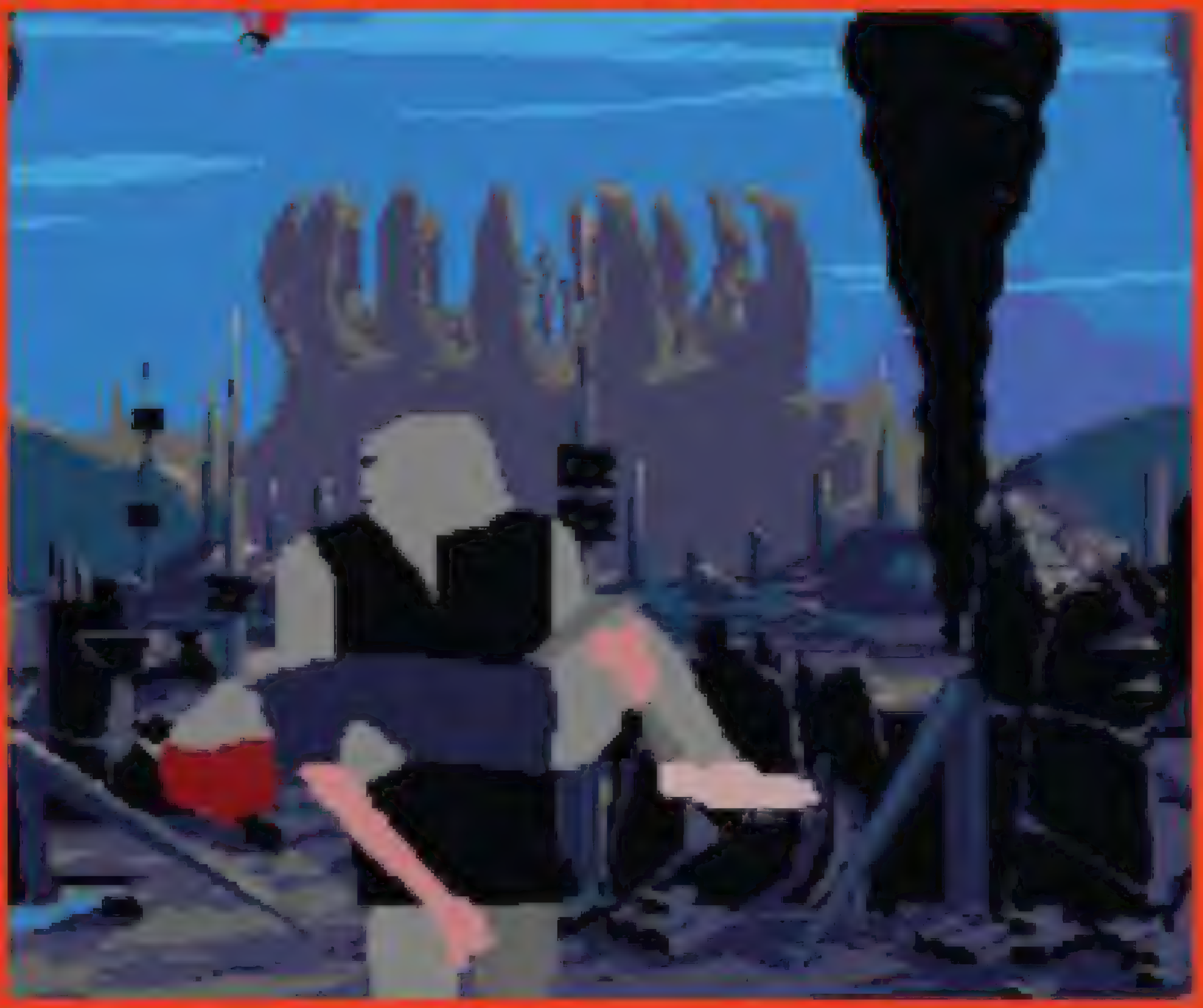
■ DEVELOPER: KONAMI ■ YEAR: 1994

■ ***Snatcher* arrived quite** late on the Mega-CD and had already appeared on previous machines including the MSX2 and the PC Engine's Super CD-ROM. Despite this it's widely considered to be the best version by most gamers, as it's the only one to receive an actual English localisation. Boasting a solid translation of the PC Engine version, *Snatcher* works thanks to its distinctive comic book style, strong voice acting and a cracking story that pays homage to everything from *The Terminator* to *Blade Runner*. The only real downside is that incredibly poor sales mean that both the US and UK versions are hard to find at a good price.

» [Mega CD] Everyone is out for your blood, so shoot first.



» [Mega-CD] Will Lester survive? You need to play the game to find out.



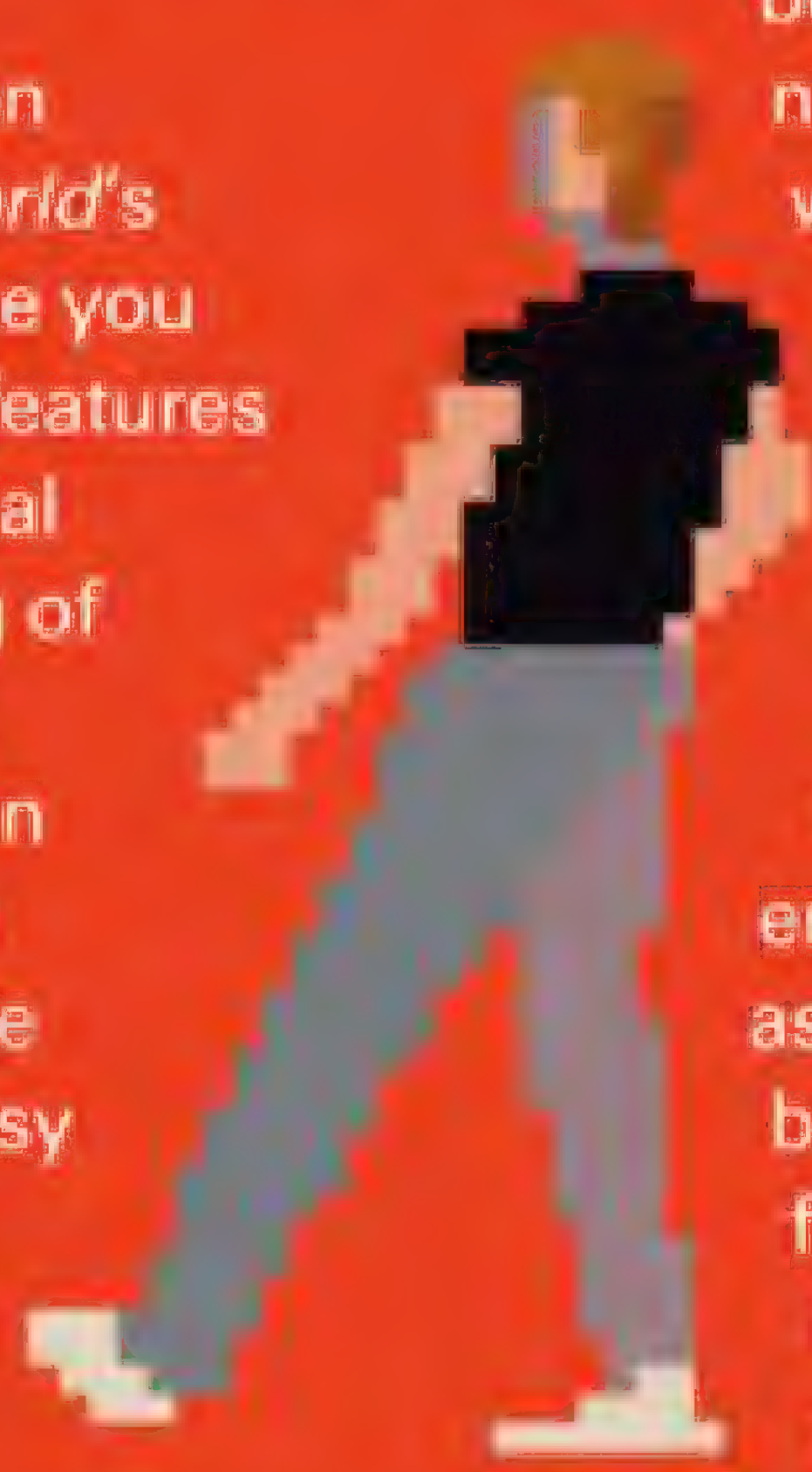
» ABOUT THE SYSTEM

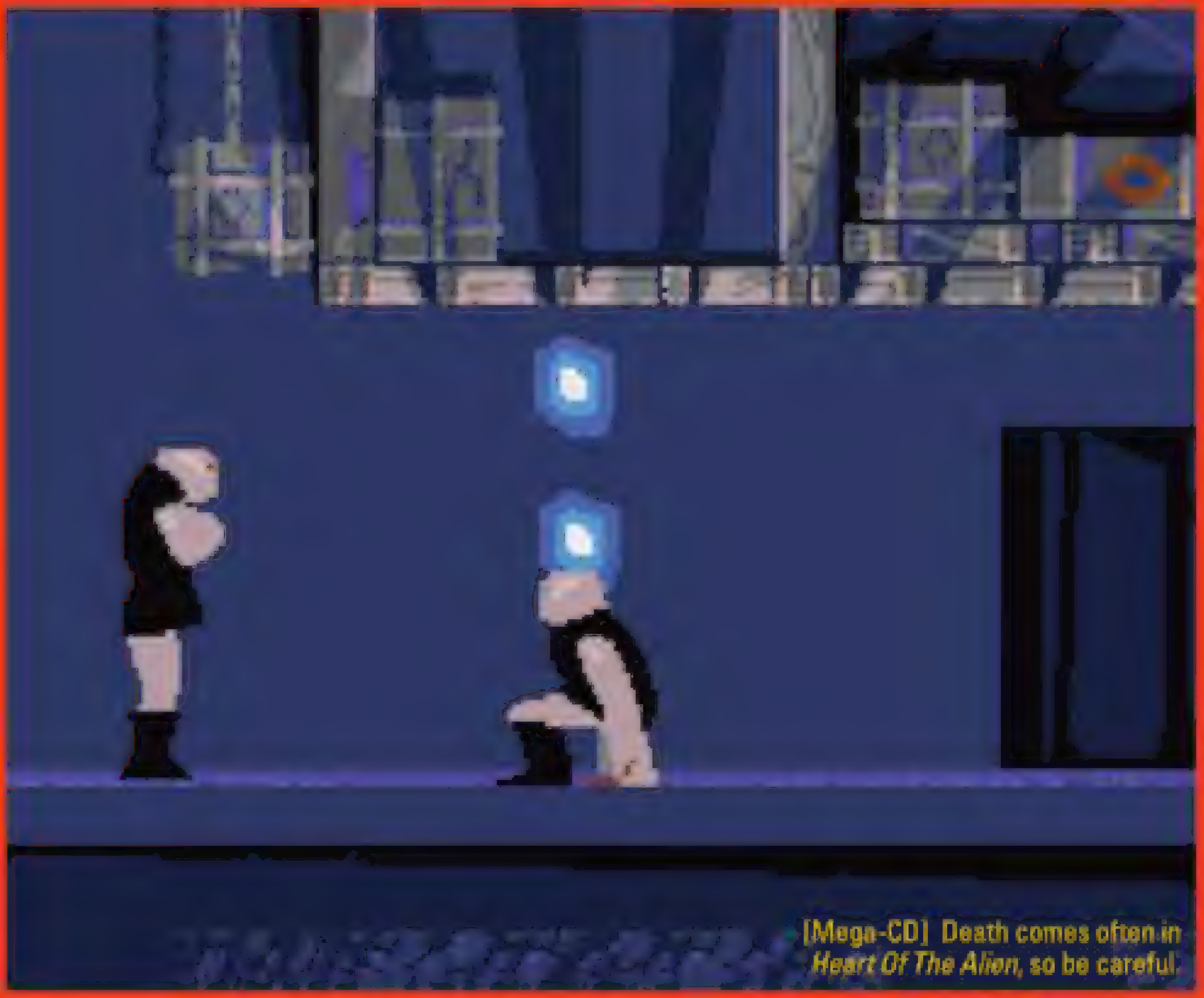
- The original Mega-CD system sat alongside the Mega Drive. The revised version eventually sat underneath the Mega Drive II.
- The machine's FMV games are often dismissed, but there are plenty of hidden gems on the system from more traditional genres.
- Collectors like to go for the Wonder Mega and the Multi-Meg, sleek units that combine both systems in a tasty package.

strong and the animation, while good, isn't up to the same high standard as the original. There's no denying that it's an equally ambitious game however, with Eric giving the team plenty of cool ideas that weren't always well executed in the final game.

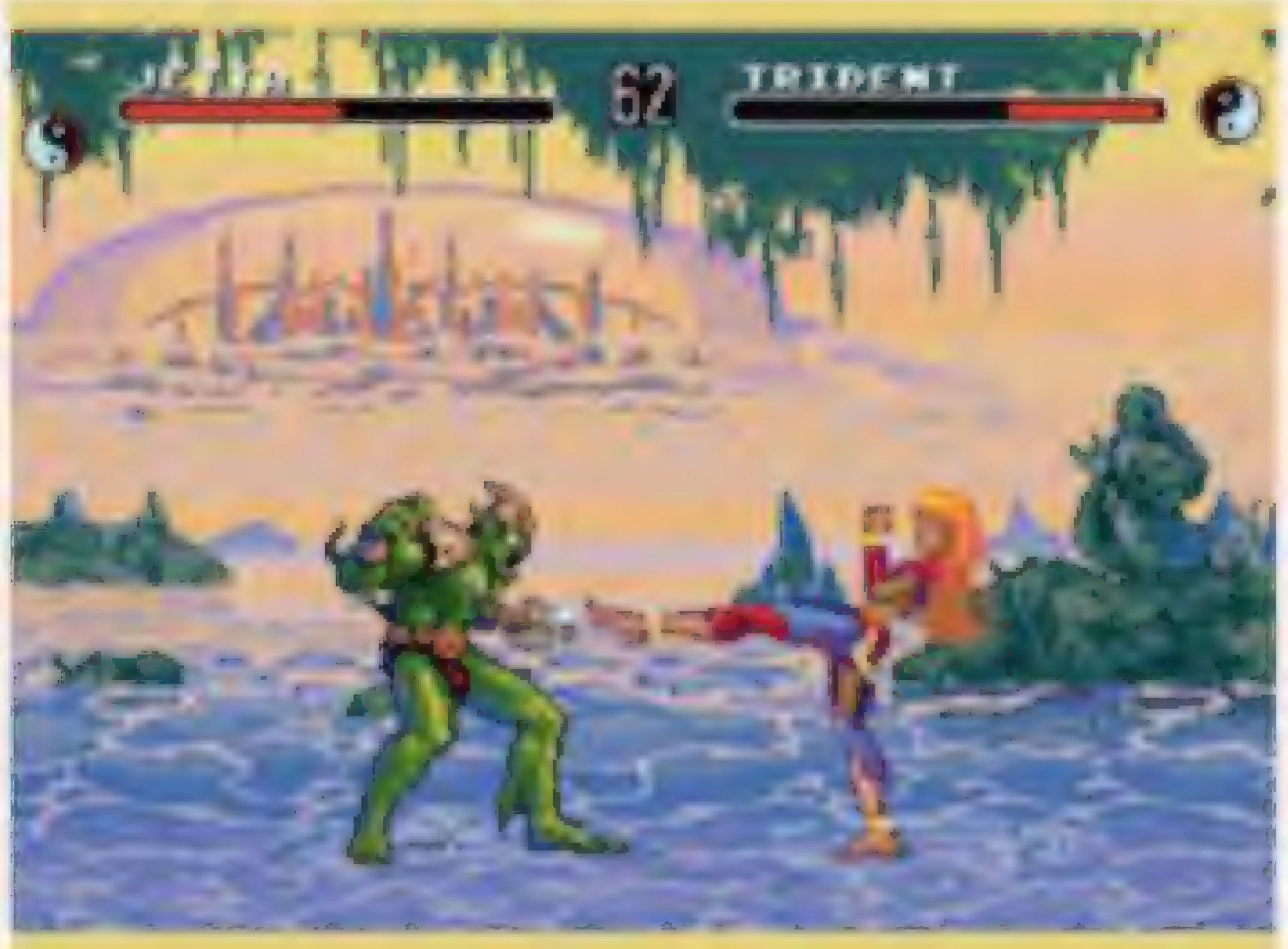
Heart Of The Alien follows on immediately from *Another World*'s cliffhanger ending, but this time you play as Lester's alien friend. It features a similar structure to the original game, with sections consisting of puzzle and platform elements, but it's a lot more difficult; often relying on trial and error to get through certain sections. Unlike the original game it's all too easy to die without realising what happened, and frustration quickly sets in.

And yet there's a pull to *Heart Of The Alien* that makes it hard to ignore. It's not as polished as the original game, but there are still plenty of nice little touches to be found. One example is the whip that doubles as both a weapon and a way of navigating bigger chasms, while another is using environmental hazards to kill certain foes. Even a little tweaking of the difficulty would have made a world of difference. *Heart Of The Alien* isn't perfect – the ending is likely to infuriate as many fans as it thrills – but it does a good job of finishing off Another World's imaginative story that it deserves to be experienced.





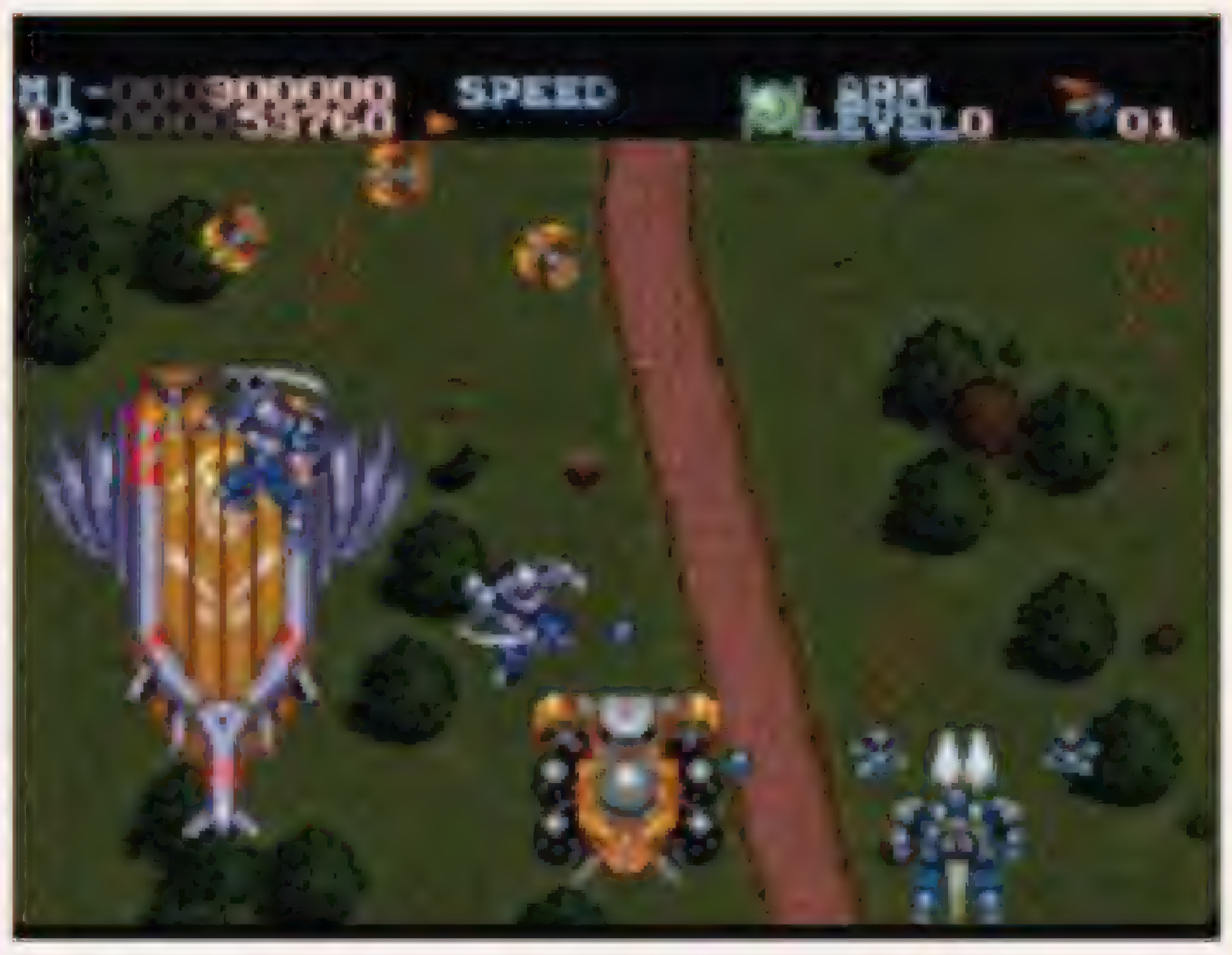
» [Mega-CD] Death comes often in *Heart Of The Alien*, so be careful.



» ETERNAL CHAMPIONS: CHALLENGE FROM THE DARKSIDE

■ DEVELOPER: SEGA INTERACTIVE DEVELOPMENT DIVISION ■ YEAR: 1995

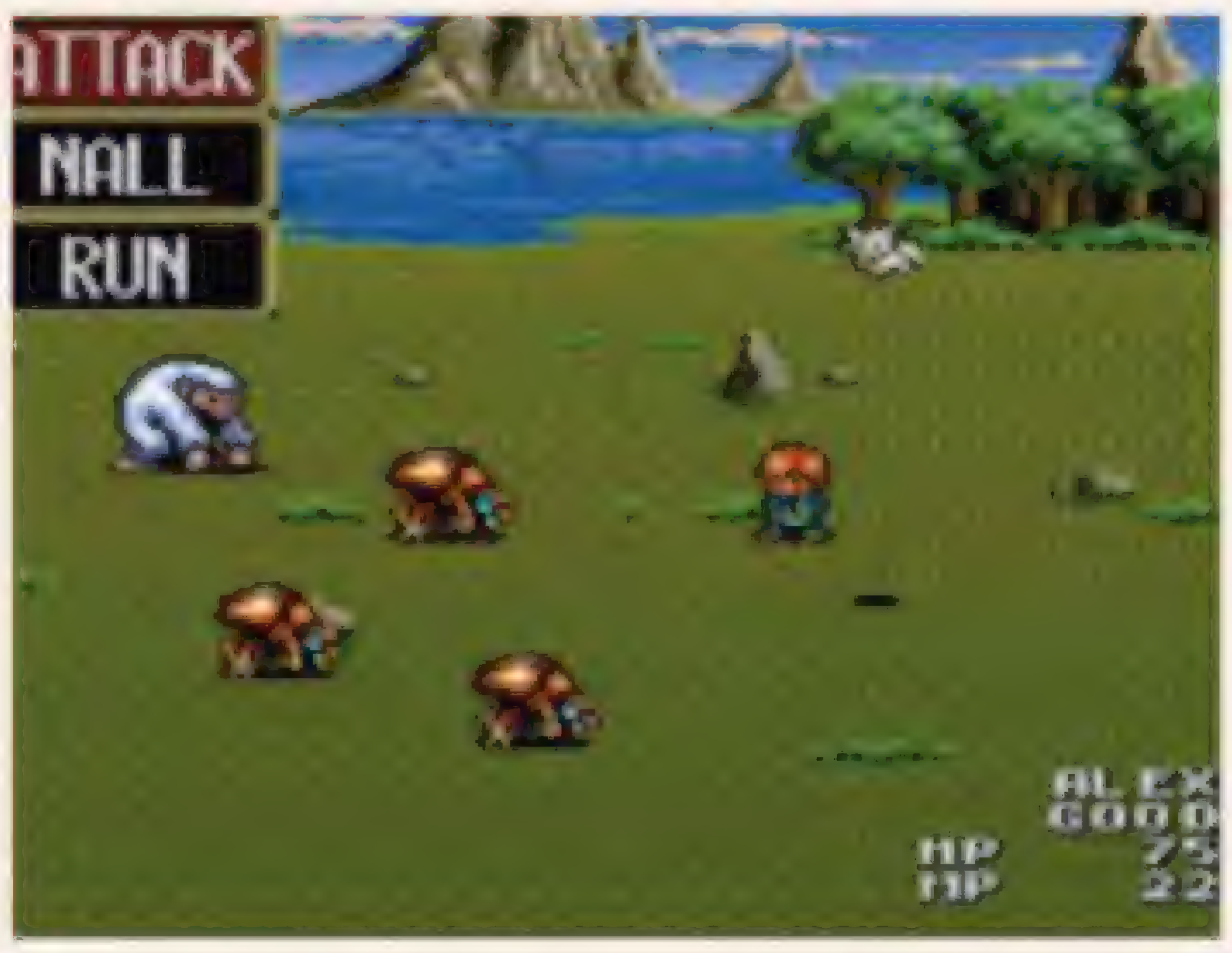
■ **One of the** downsides of the Mega-CD is that it suffers from a lot of quick Mega Drive ports. Sega really pushed the boat out for *Challenge From The Darkside* however, and in many ways it's more a full-on sequel. Featuring all nine fighters from the original game, it also introduces 13 new competitors. Cine-Kills are another fun addition, being funky FMV-based fatalities that often look unintentionally hilarious. Add in gameplay enhancements like Overkills and Vendettas, greatly enhanced visuals and slicker animation, and this becomes a must-buy.



» ROBO ALESTE

■ DEVELOPER: COMPILE LTD ■ YEAR: 1992

■ **There aren't many** shoot-'em-ups on the Mega-CD, but most of them are absolute belters. *Robo Aleste* is by far the best of the lot, building on the groundwork laid out by its excellent Mega Drive predecessor, *Musha Aleste*. The setting is brilliant, taking place in an alternative version of feudal Japan where the natives control giant flying mechs. It's the cleverly designed enemy waves, distinct power-up system, brilliant graphics and thumping soundtrack that really makes *Robo Aleste* stand apart from its peers, creating a savage frenetic blaster that puts it up there with the best of the 16-bit shooters. A further example of Compile's brilliance within the genre.



» LUNAR: THE SILVER STAR

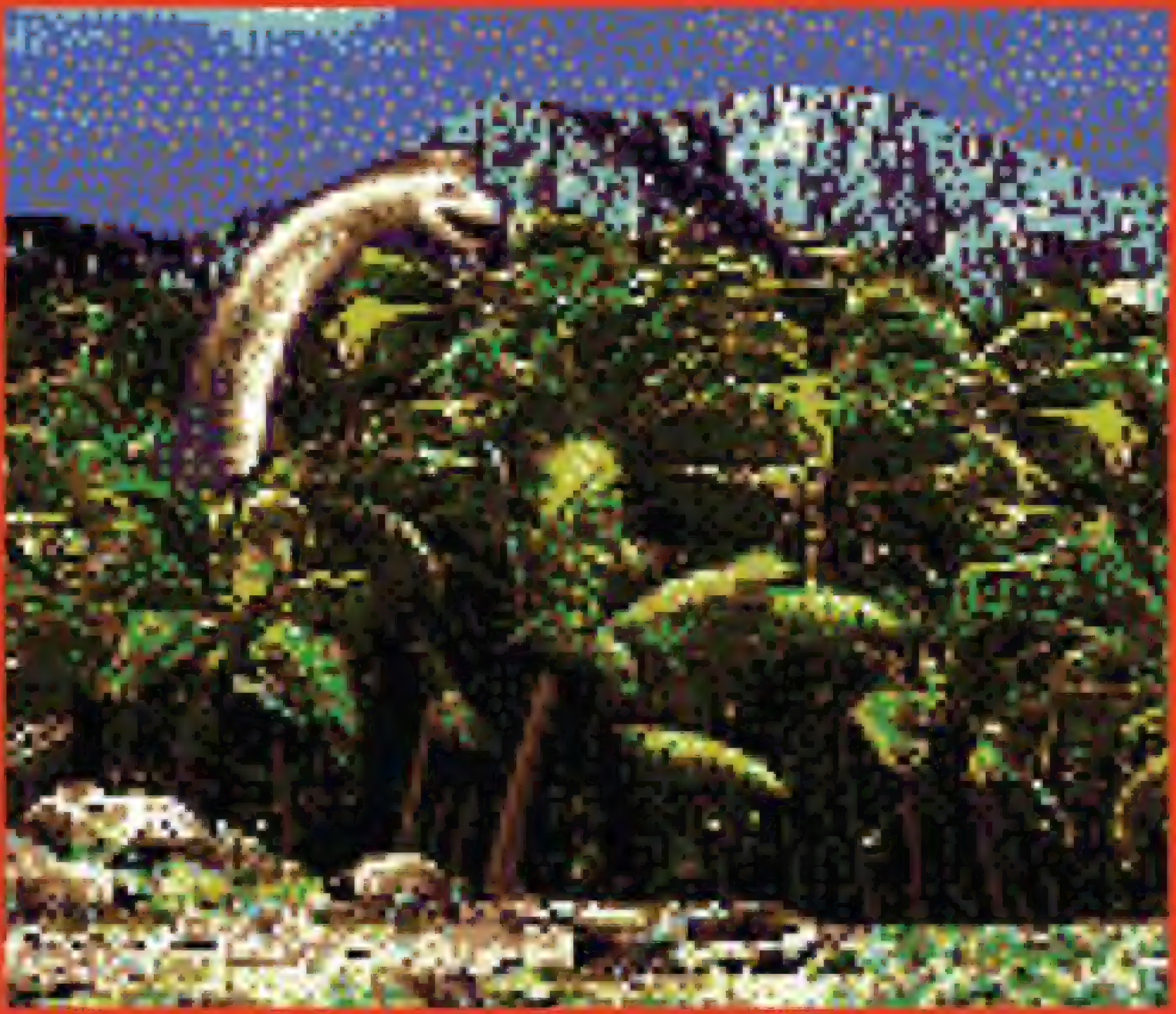
■ DEVELOPER: STUDIO ALEX, GAME ARTS ■ YEAR: 1992

■ **There are plenty** of great RPGs on the Mega-CD, and many of them received Western localisations. *Lunar: The Silver Star* is the Mega-CD's answer to *Final Fantasy*, and bloody good it is too. The main visuals are heavily typical of the 16-bit sprites used at the time, but it comes alive thanks to a gripping story, robust combat, some truly beautiful cutscenes and a stellar soundtrack courtesy of Noriyuki Iwadare. Like many RPGs from the era, the game's Western localisation was handled by Working Designs, meaning it's excellently translated and features great voice acting. A follow-up, *Lunar: Eternal Blue*, is also available on the system.

Minority Report

JURASSIC PARK

■ DEVELOPER: SEGA OF AMERICA ■ YEAR: 1993



» [Mega-CD] An excellent point-and-click adventure with inventive use of FMV.

■ **Sega pulled out all the stops for *Jurassic Park*, going so far as to send developers and a steadicam unit all the way to Hawaii to film footage for its game. Amazingly, despite being there for several weeks, hardly any of the footage was used, meaning the end product was vastly different to the heavily FMV-based games that were dominant on Sega's system at the time.**

Rather than go down the action route like it had with its Mega Drive game, *Jurassic Park* on the Mega-CD took the form of a rather impressive point-and-click adventure. Many of the locations from the film are revisited, while the digitised graphics do a great job of capturing the ambience of the island. Of course, FMV footage was still prevalent throughout the game, but it genuinely enhances the atmosphere thanks to links to key scientists and a handy palaeontologist who routinely pops up to offer advice on the many dinosaurs to be found.

While *Jurassic Park* is an adventure game first and foremost, Sega did add a few arcade elements to the game, so there are several occasions where you'll have to take out attacking dinosaurs with your handy tranquiliser gun. The sections are very well paced, nicely juxtaposing with the otherwise leisurely exploration of the huge island. Exceptionally atmospheric and with a strong story – revolving around the collection of precious dinosaur eggs – *Jurassic Park* is a Mega-CD release that's well worth investigating, regardless of whether you're a fan of the series or not.

» SONIC CD

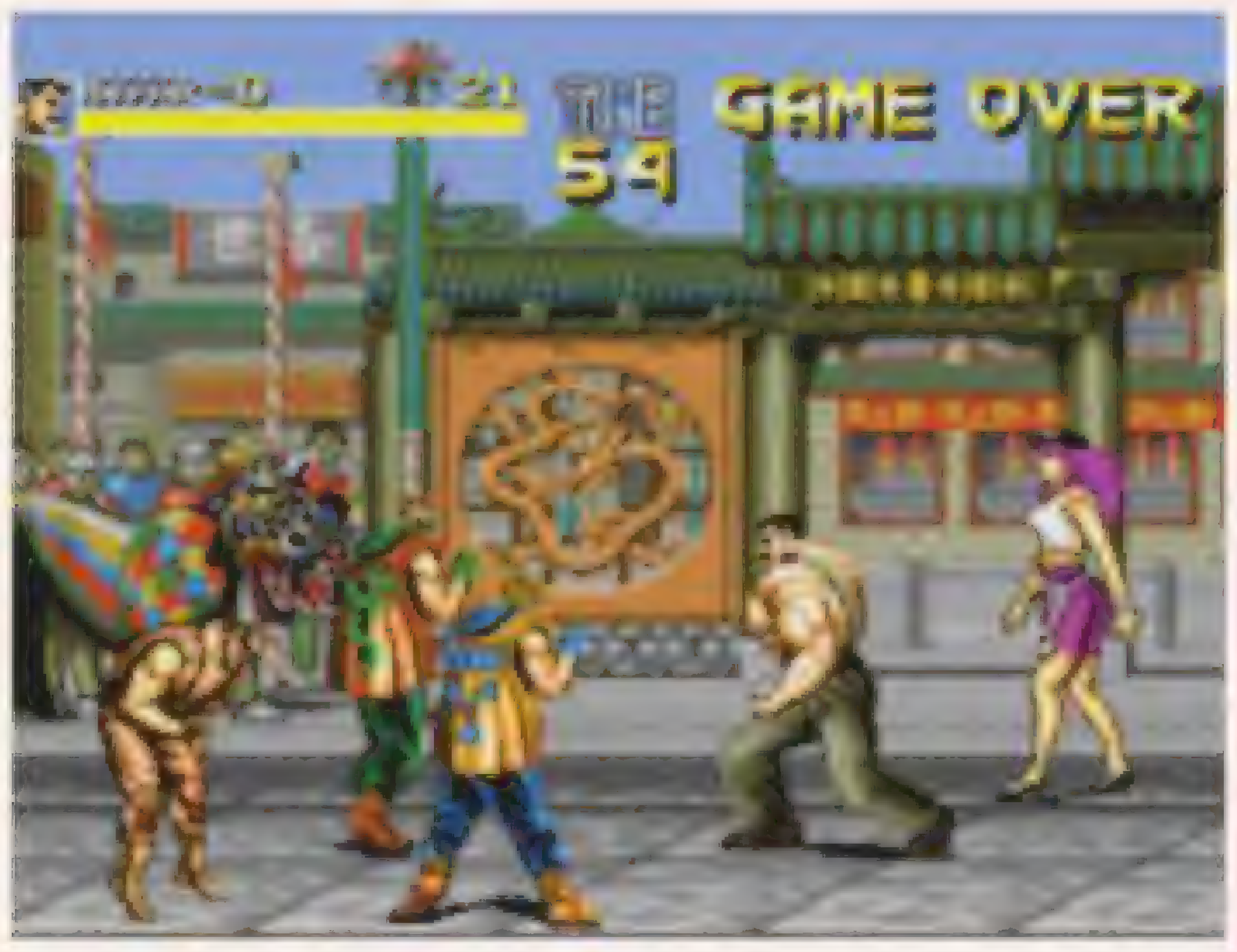
■ DEVELOPER: SONIC TEAM ■ YEAR: 1993

■ Sonic's Mega-CD debut boasted a stunning soundtrack, imaginative level design and a clever new time travel mechanic. Little wonder many consider it to be the best game in the series.

» KEIO FLYING SQUADRON

■ DEVELOPER: JVC ■ YEAR: 1993

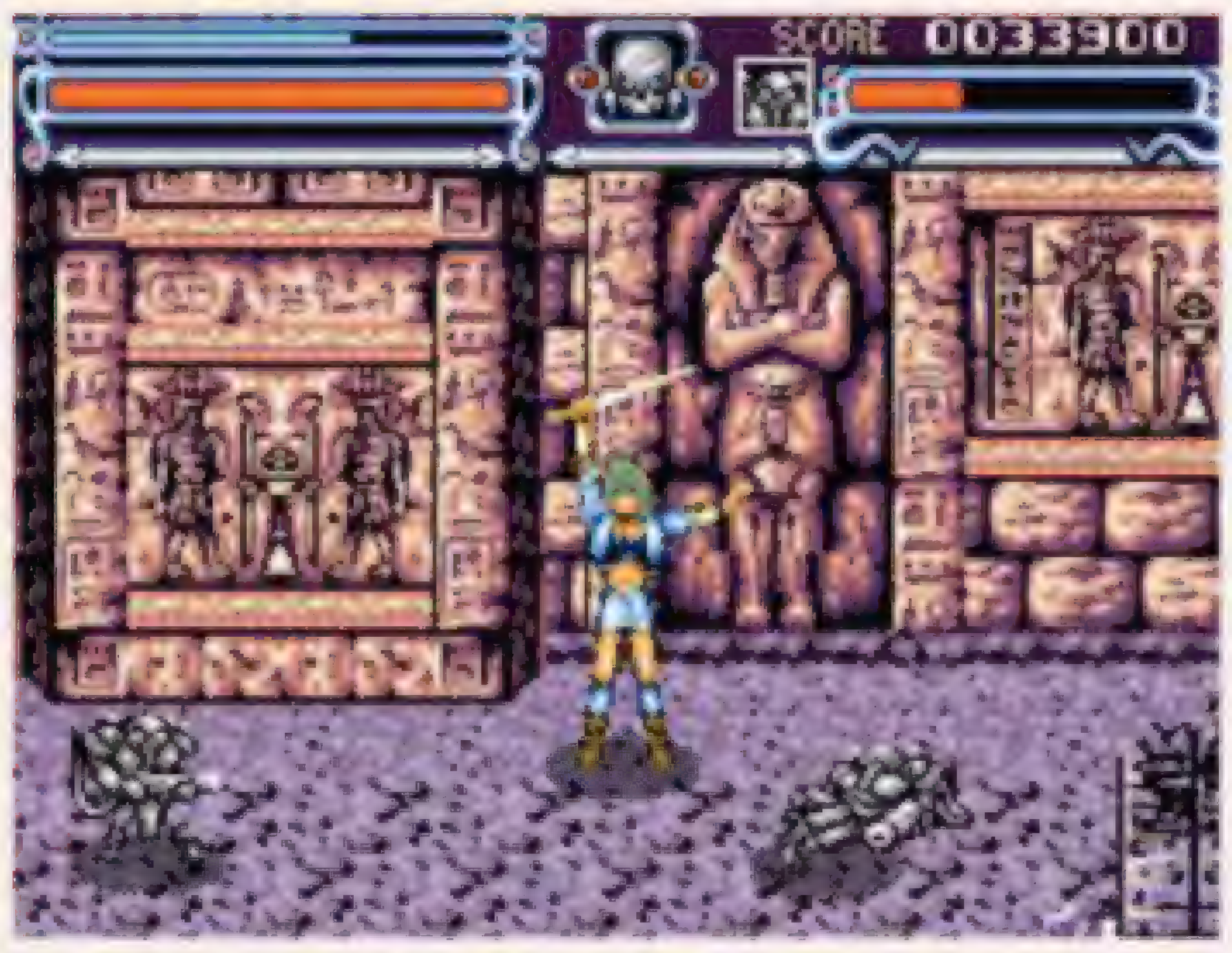
■ A delightful *Parodius*-style side-scrolling shooter that features gorgeous cutscenes and a girl with rabbit ears who flies on a dragon. Filled with tight enemy waves and fun bosses, it's an enjoyable shooter.



» FINAL FIGHT CD

■ DEVELOPER: SEGA ■ YEAR: 1993

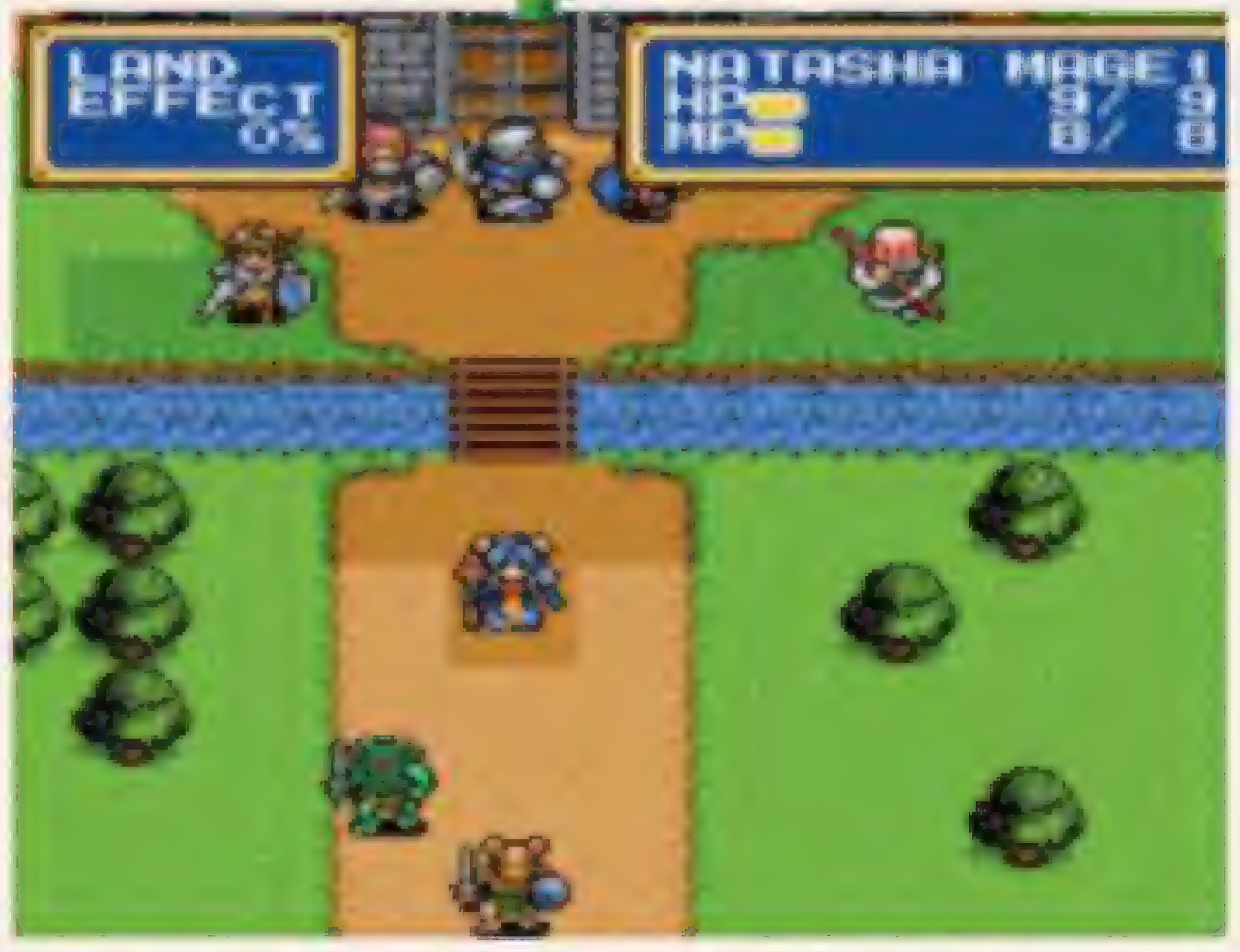
■ **Outside of the** stunning Sharp X68000 version, this was easily the best home version of *Final Fight*. Unlike the SNES version, it features every single level from the original arcade game. Guy is fully playable, it caters for two players and all three characters are selectable. Other enhancements include new speech, a funky remix of the original soundtrack and a brand new Time Attack mode that makes the fighting even more frantic. There aren't as many sprites to fight onscreen compared to the original arcade game, and it has the same censorship issues as previous Western versions, but it's a small price to pay for the system's best scrolling fighter.



» ANETT FUTATABI

■ DEVELOPER: WOLFTEAM ■ YEAR: 1993

■ ***Anett Futatabi* is** actually a sequel to Wolfteam's El Viento, a platformer that had appeared on the Mega Drive two years earlier. Wolfteam went in a completely different direction for the sequel however, turning into a slick *Double Dragon* clone, much to the chagrin of some fans. Get past this and you'll discover that *Anett Futatabi* is actually very good, with plenty of meaty action and a variety of well-animated scum to knock into next week. It obviously borrows rather heavily from the likes of *Final Fight* and *Streets Of Rage*, but it stands apart from them thanks to its excellent cut-scenes and brilliant soundtrack.



» SHINING FORCE CD

■ DEVELOPER: SONIC! SOFTWARE PLANNING ■ YEAR: 1994

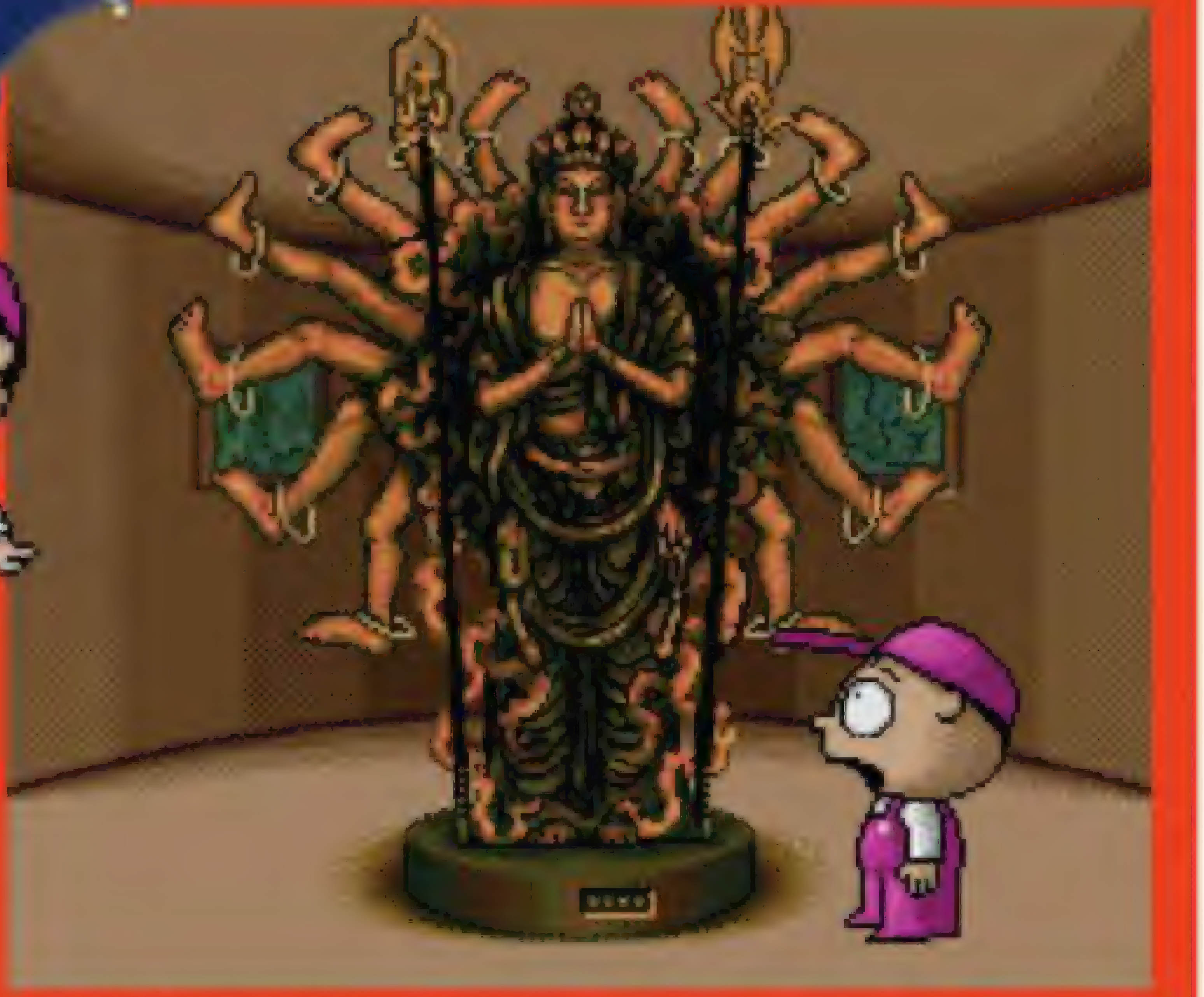
■ **This isn't a** new *Shining Force* game, being a remake of the Game Gear's *Shining Force Gaiden I* and *II. Gaiden* was confined to Japan though, meaning this was the first opportunity for fans of the series to experience an English localised version. It's a great RPG as well, divided into several acts and featuring enhanced graphics and a truly glorious soundtrack. The omission of the village where you could buy items and interact with villagers is a curious choice – you simply buy what you need from a shop – but we feel this works in *Shining Force CD*'s favour, allowing you to simply focus on the gritty strategic battles.

PANIC!

■ DEVELOPER: SEGA ■ YEAR: 1993

■ If the *Monty Python* team decided to ever make a videogame, it's quite possible that *Panic!* would have been the result. Known in Japan as *Switch*, *Panic!* is one of the craziest, and bravest games to appear on a Sega console and it's a testament to Sega's creativity at the time that it made it to actual market.

Held together by the thinnest of plot threads, *Panic!* sees Slap, a young boy, and his pet dog Skip getting sucked into a Mega-CD after the world's electricity fails. Slap soon discovers himself in a number of surreal scenarios that involve a room and a number of buttons. Pushing buttons sometimes moves Slap to a different room, and will occasionally destroy famous monuments, but mostly they'll trigger some of the most surreal gaming sequences of all time. Watching the Mona Lisa transmogrify into a werewolf, seeing The Thinker walk away from his famous seat after flushing a nearby chain and watching the room get sucked up around you by a hungry hoover are just some of the weird and fantastical things that *Panic!* throws at you, and it simply gets more surreal as the game goes on. Yes, it can be argued that the gameplay is incredibly simplistic, and the jokes wear thin all too quickly, but *Panic!* is hilarious fun while it lasts.



» [Mega-CD] *Panic!* is full of ridiculously surreal moments. You never know what will happen next.

» EYE OF THE BEHOLDER

■ DEVELOPER: WESTWOOD ■ YEAR: 1994

■ The port of Westwood's hit *Dungeons & Dragons* game is notable for featuring an amazingly atmospheric score. It's also compatible with the Mega-CD's mouse.

» ECCO THE DOLPHIN

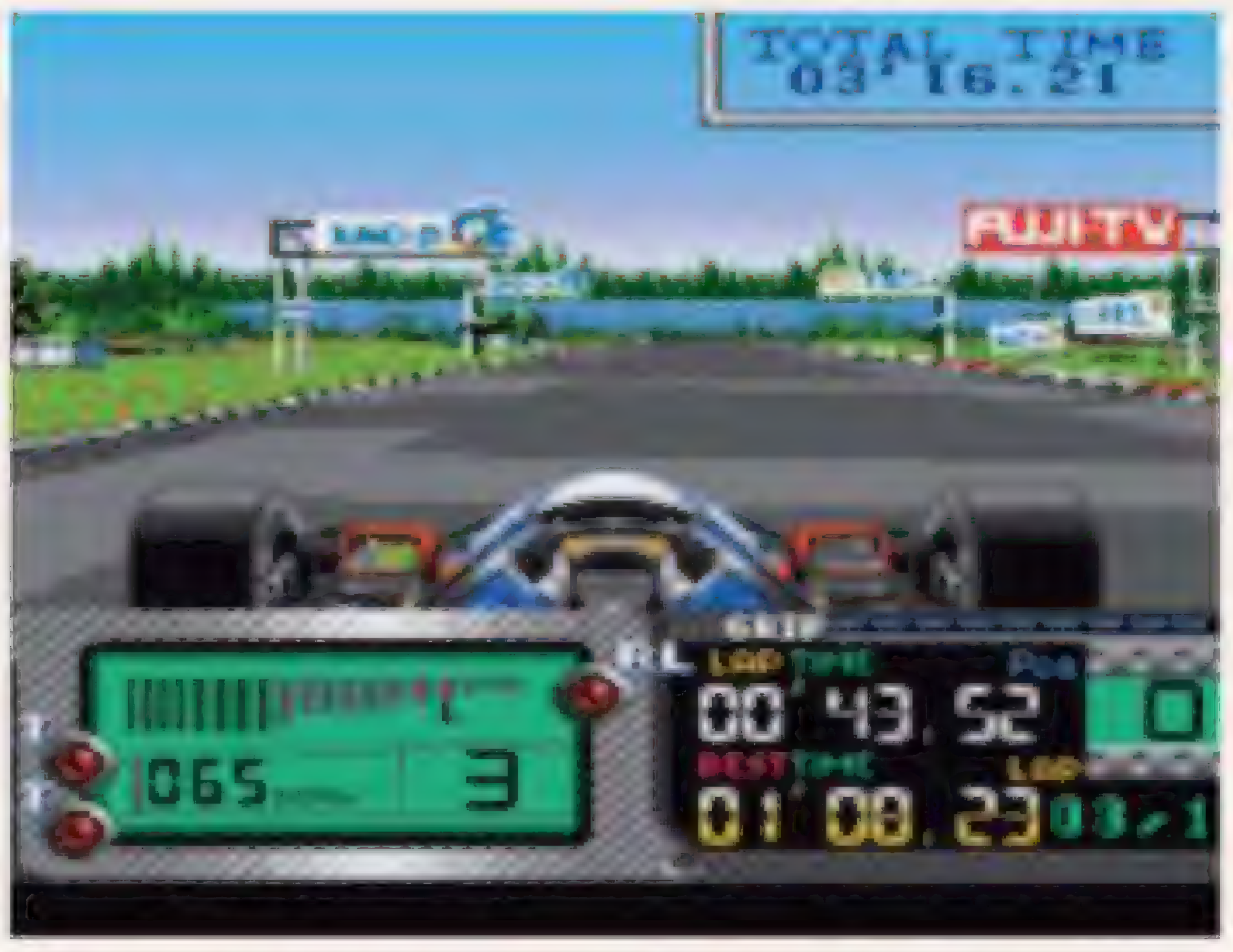
■ DEVELOPER: NOVOTRADE INTERNATIONAL ■ YEAR: 1993

■ The only reason we're including this port here is because Spencer Nilsen's new soundtrack is absolutely glorious.

» JAGUAR XJ220

■ DEVELOPER: CORE DESIGN ■ YEAR: 1993

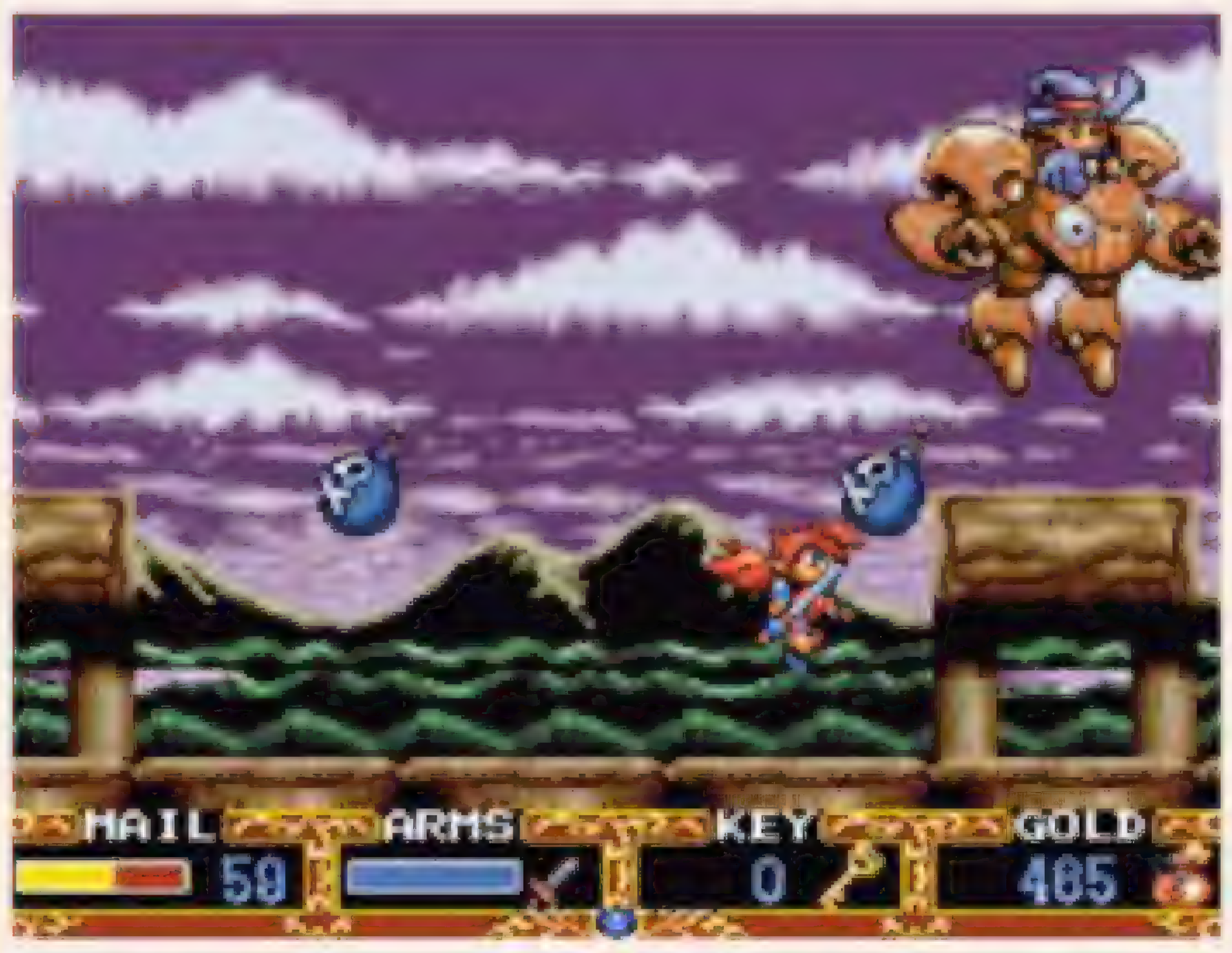
■ This is one of the better racing games, with fast visuals and some slick scaling and rotation effects. Just ignore the weedy sound effects.



» FORMULA ONE WORLD CHAMPIONSHIP: BEYOND THE LIMIT

■ DEVELOPER: SEGA SPORTS ■ YEAR: 1994

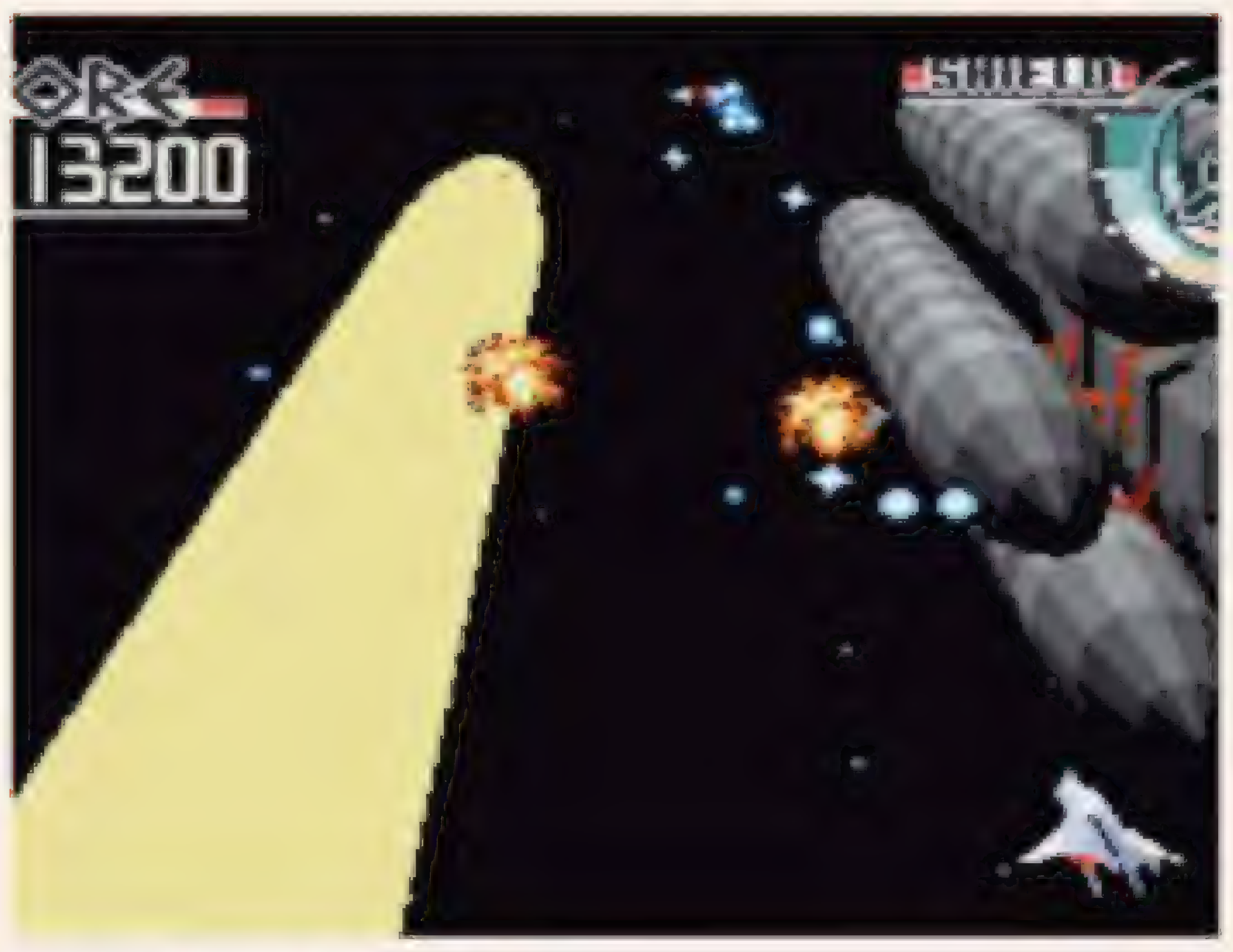
■ **This is the** best pure racing game available for Sega's add-on, playing like a steroid-injected version of *Super Monaco Grand Prix*. Known in Japan as *Heavenly Symphony*, it's an exceptionally polished racer with beautiful presentation (you get audio commentary before each track) lots of gameplay modes and a huge variety of different cars to race. The graphics throughout are excellent, making great use of the Mega-CD's scaling and rotation effects to give a really good impression of speed.



» POPFUL MAIL

■ DEVELOPER: SEGA/WORKING DESIGNS ■ YEAR: 1994

■ **While *Popful Mail*** first appeared on the PC98, it's a completely different game compared to the later Mega-CD release. While the original game was a side-on RPG, with tiny graphics and a combat system that was ripped from *Ys*, the Mega-CD effort was far more ambitious. Coded by Sega/SIMIS with localisation support from Working Designs, it's a fantastic platformer that's filled with memorable characters and genuinely fantastic dialogue and voice acting. Working Designs gave even the lowliest characters a chance to shine, while the whole game has the vibe of the later *Wonder Boy* adventures (no bad thing in our book). A truly delightful platformer.



» SILPHEED

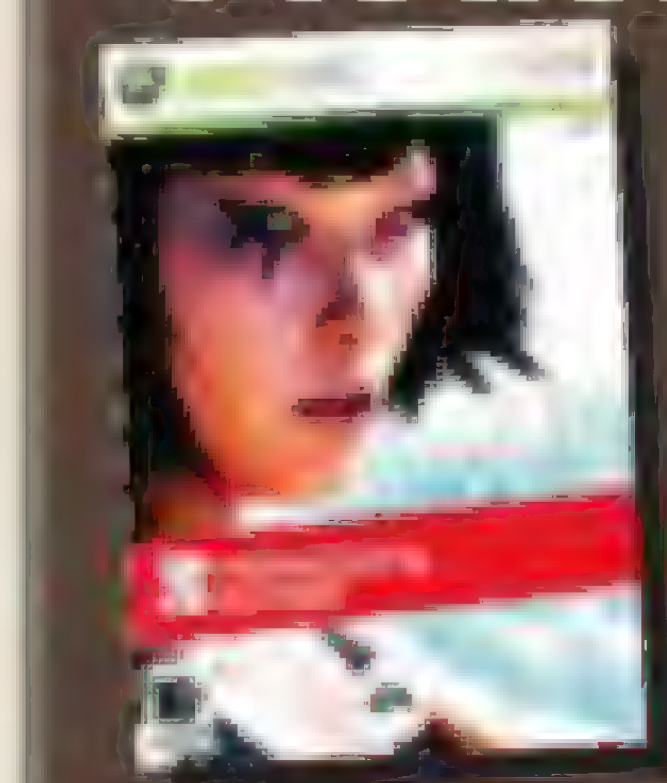
■ DEVELOPER: GAME ARTS ■ YEAR: 1993

■ **While *Robo Aleste*** is the best traditional shooter on Sega's Mega-CD, this amazing effort from Game Arts certainly gives it a run for its money. *Silpheed*'s trump card is that it uses polygons to create its dynamic gameworld. While this means it can look rather ugly, it runs at a phenomenal pace, capturing the excited spirit of arcade smashes like *Star Blade*. There's something truly epic about taking down wave upon wave of enemy fighters while you soar other the body of a huge mothership. There's a superb movie-like atmosphere to the game that is far more effective in engaging the player than the many FMV-based games found on the system.

Future Classic

Modern games you'll still be playing in years to come

retro GAMER
PLUS: THE SCARIEST RETRO GAMES EVER
SILENT HILL 2
THE MIST
REALMS OF THE HAUNTING
THE 7TH GUEST

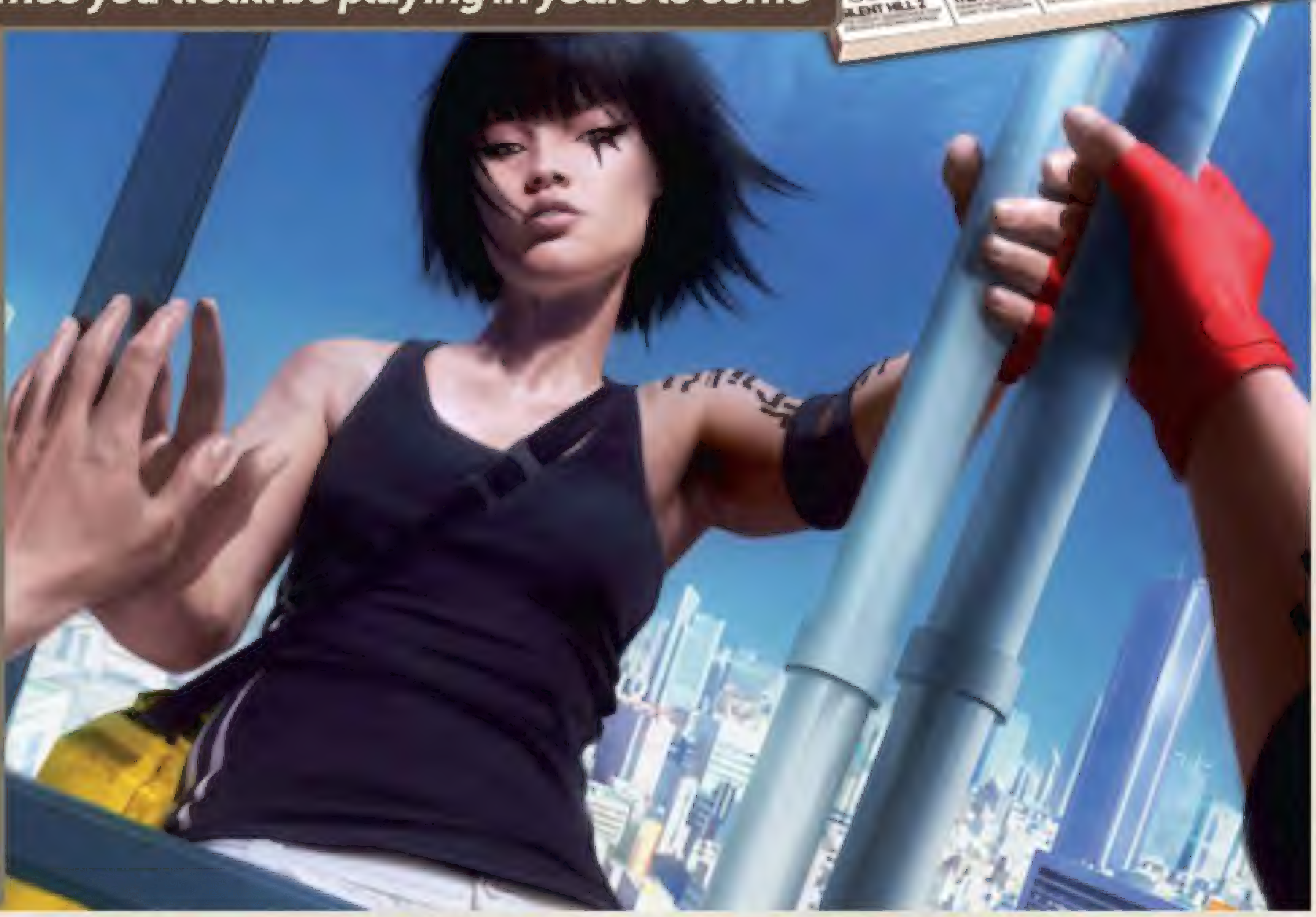


INFO

- **Featured System:** Xbox 360
- **Year Released:** 2008
- **Publisher:** EA
- **Developer:** DICE
- **Key People:** Owen O'Brien (senior producer), Senta Jakobsen (senior development director), Magnus Walterstad (audio director)

GO DEEPER

- **Faith was originally going to carry a gun in the game, until DICE thought better of it – early artwork for the game depicts her with a pistol.**
- **2011 game *Battlefield 3* has a street sign reading "Ave. de Faith Connors", indicating that *Mirror's Edge* hasn't been forgotten.**



MIRROR'S EDGE

An FPS without guns, free running simulator Mirror's Edge turned the most functional part of such games into an extraordinary experience

THE BACKGROUND

As part of a drive to publish quality new IP, *Mirror's Edge* joined *Dead Space* as one of EA's key new-gen titles when it was announced in 2007. DICE, previously known only for multiplayer shooter series *Battlefield*, sought to turn its primary genre upside down. "With *Mirror's Edge* we set out to make something that was completely different from anything we had done before and, to a certain extent, different to anything anyone had done before," producer Owen O'Brien said in 2010.

DICE didn't want to rest on its laurels, and *Mirror's Edge* grew out of that: a mainly gun-free FPS that employed free running as its governing mechanic. The developer wanted to challenge the notion that realistic movement couldn't be done in an FPS genre – the fascinatingly sterile vision of the future grew out of that, as DICE's intention was to create a world that provoked the senses, giving the player a metaphorical look at this dystopia as protagonist Faith saw it.

While not a massive seller, crushed by the influx of releases in the Christmas 2008 period, it quickly earned a cult following for going against the curve of dull military shooters. "We set out to try new things in almost every area and challenge conventions," O'Brien added. "Some of these worked really well and some less so, but I'm glad we tried them all."

THE GAME

There is nothing quite like *Mirror's Edge* – it lies somewhere in the massive gap between a 3D platformer and a first-person shooter, a game that beautifully simulates the art of free running in a jaw-dropping, clinical utopia. Faith's speed, precision and physicality are your only weapons, and while in many first-person games, movement is simply a means to an end, in this it's the point of the experience.

DICE brings that to life with gusto. Levels are gigantic mazes employing a mixture of linear and freeform routes, intricate puzzles that are unravelled

Things of note

Challenging Faith

Mirror's Edge offers abstract challenge rooms that are almost like *MGS* VR training rooms through a rainbow-coloured filter, encapsulating the purity of the free running.

Mirror's Edge Vs Canabalt

The only continuation of the series on any platform is the basic but reasonably well-made *Mirror's Edge* iOS game, which turns *Canabalt* into something full-featured.

PC Upgrade

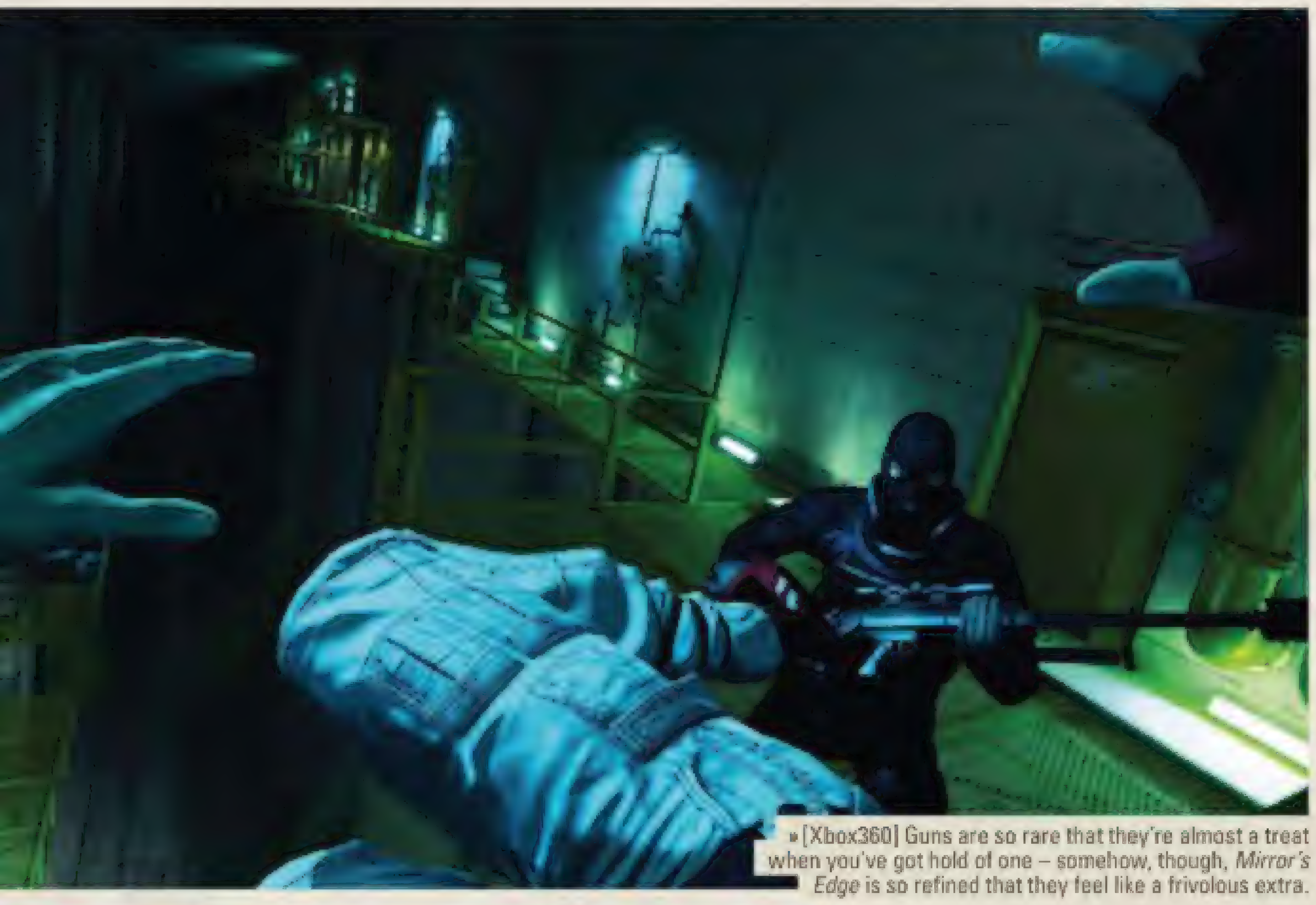
DICE is renowned for its technical wizardry with hardware, and naturally, the PC version of *Mirror's Edge* represents the developer's strongest efforts.

Colour Co-ordination

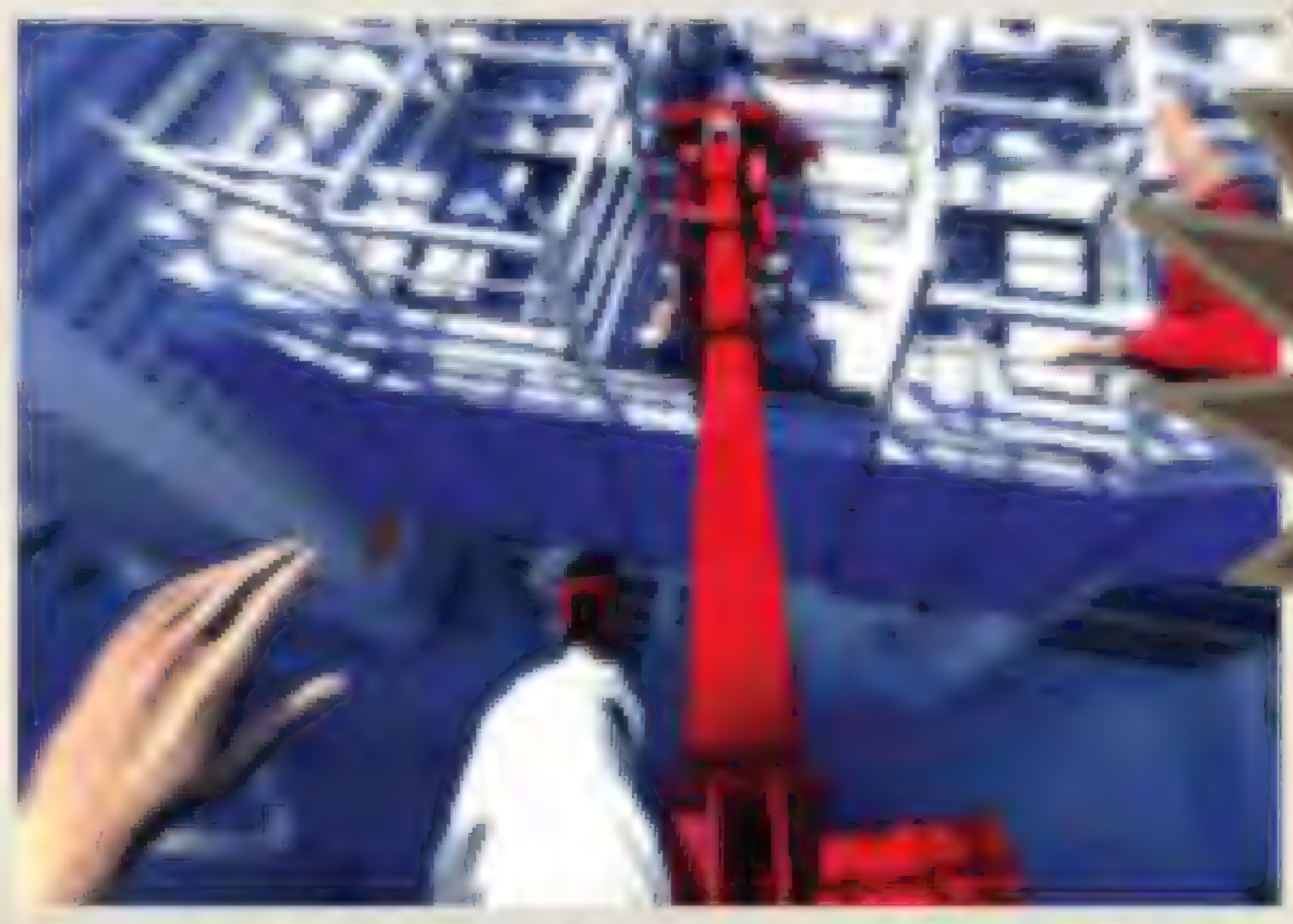
It's the blend of colour in *Mirror's Edge* that makes the art direction so striking – basic yet bright, it shows what game artists can achieve when given the freedom to experiment.

Sequel, Maybe

Mirror's Edge 2 will happen someday, EA keeps promising – it's just finding the right approach, apparently. We'll believe it when we see it.



» [Xbox360] Guns are so rare that they're almost a treat when you've got hold of one – somehow, though, *Mirror's Edge* is so refined that they feel like a frivolous extra.



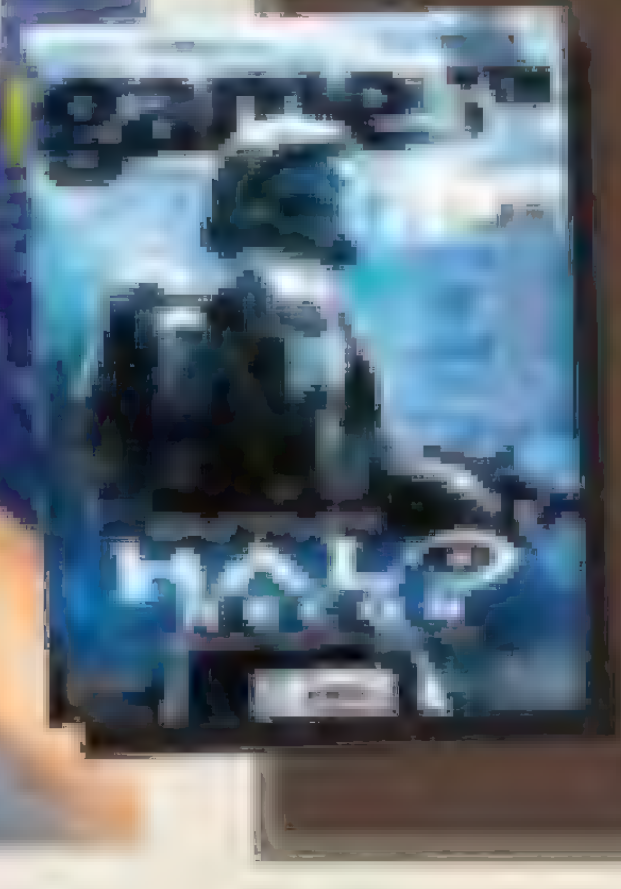
» [Xbox360] Though mostly orchestrated, *Mirror's Edge* does offer some freedom in choosing your paths through certain levels.

What the press thought

X360

Score: 8/10

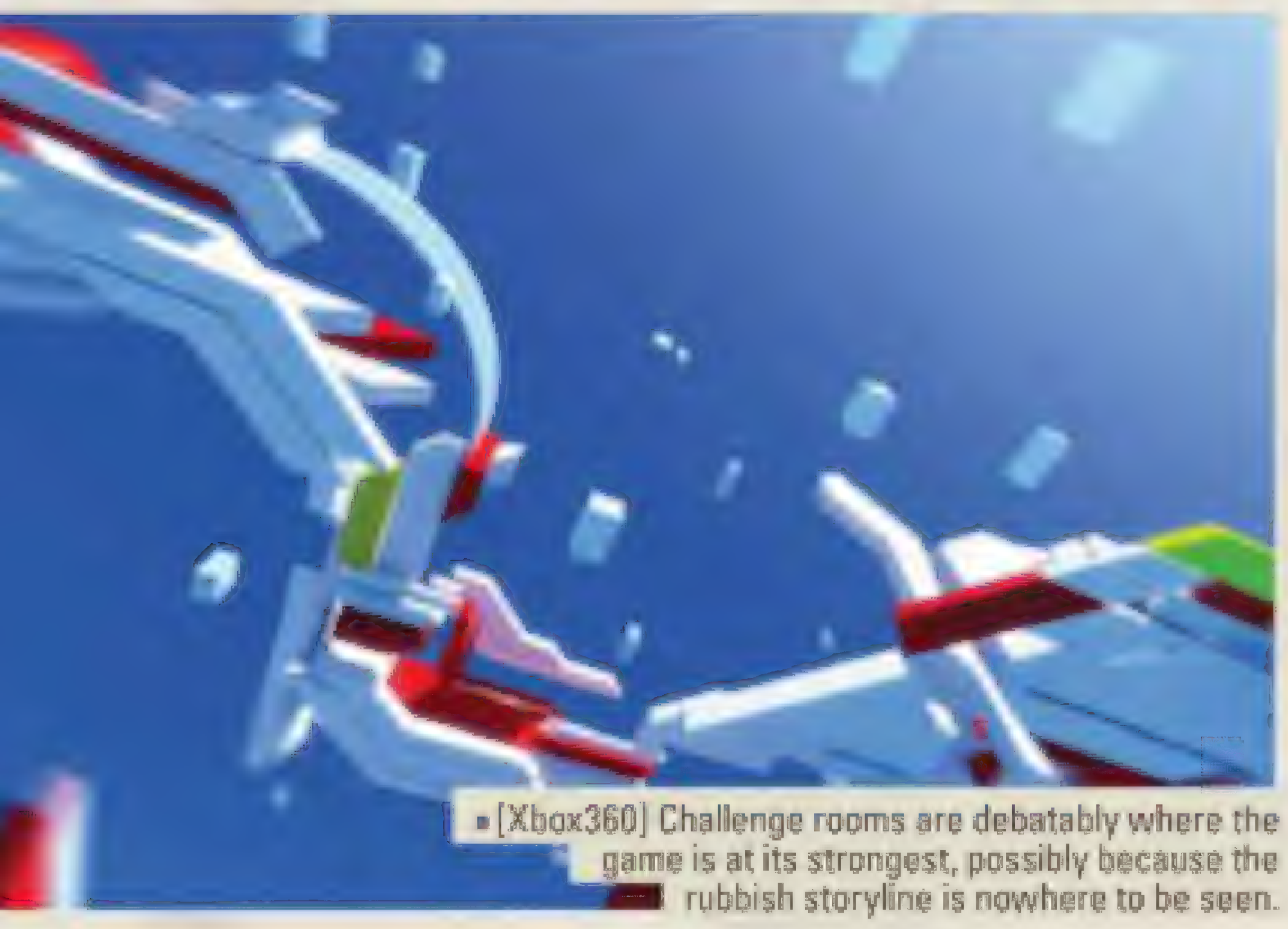
"There's a lot to love in *Mirror's Edge*, times when it reaches potential game of the year material, times when mind, body and control come together."



gamesTM

Score: 8/10

"*Mirror's Edge* needs to be played again and again if you're to discover its true worth, and there are many who won't play ball."



» [Xbox360] Challenge rooms are debatably where the game is at its strongest, possibly because the rubbish storyline is nowhere to be seen.

by experimentation. Faith isn't a superhero, and *Mirror's Edge* ensures that the player is in tune with the character's vulnerabilities; that jumping then turning in mid-air will make her fall on her arse, as it does in real life. It's only as you slowly start to conquer the mechanics that you feel empowered, drawn into this sense of hyperrealism, aided by remarkably subtle sound and visual cues designed to simulate momentum. It's quite extraordinary how these delicate touches, like the sound of breathing or feet pounding against concrete, or even your vision narrowing as you hit full speed, can make movement feel so utterly important.

Nothing illustrates that better than those moments where Faith does have access to a gun, grabbed either by disarming a guard or finding one on the floor – firing a weapon in these instances just feels ordinary. You empty the clip, and move on. A firearm isn't especially helpful when you have to keep moving to survive. It's interesting that a developer so used to building gameplay paradigms around weapons created a game where they were entirely disposable to the player, but *Mirror's Edge* earns the confidence from the player to hinge everything on the free running.

That is assisted by the game's mighty art direction, which portrays a world that is bleakly extravagant, at once colourful yet threadbare. It's a city that tells its own story simply by letting you play. Sadly, when the actual plot does flop into view via dull animated cut-scenes, the script is just generic dystopian tripe completely at odds with the ingenuity behind everything else within the experience.

But that's not the true story of *Mirror's Edge*, anyway – the real narrative is composed of quiet moments on skyscraper rooftops, scarpering away from gunfire or jumping between moving trains. The idea of being Faith represents a unique brand of storytelling that only a game is capable of pulling off.

WHY IT'S A FUTURE CLASSIC

Mirror's Edge makes you wonder what would happen if every talented triple-A developer on the planet was allowed to explore creativity-driven ideas, rather than marketing-driven ones. Capturing the physicality of free running so perfectly, this was a massive risk by DICE, who were so firmly associated with military shooters prior to *Mirror's Edge*'s release – everything about it felt new. In an industry where the walls seem to be closing in on triple-A games, DICE took its *Battlefield*-honed FPS expertise and convincingly evolved the way we embody virtual characters as players.

Veterans of *Mirror's Edge* understand how rewarding it is to learn the design of the game, inside and out, and to begin seeing the red-highlighted world ahead of Faith as an opportunity for interactive expression, rather than an obstacle. We'd be surprised if any developer re-examined the first-person shooter in this elaborate fashion again.

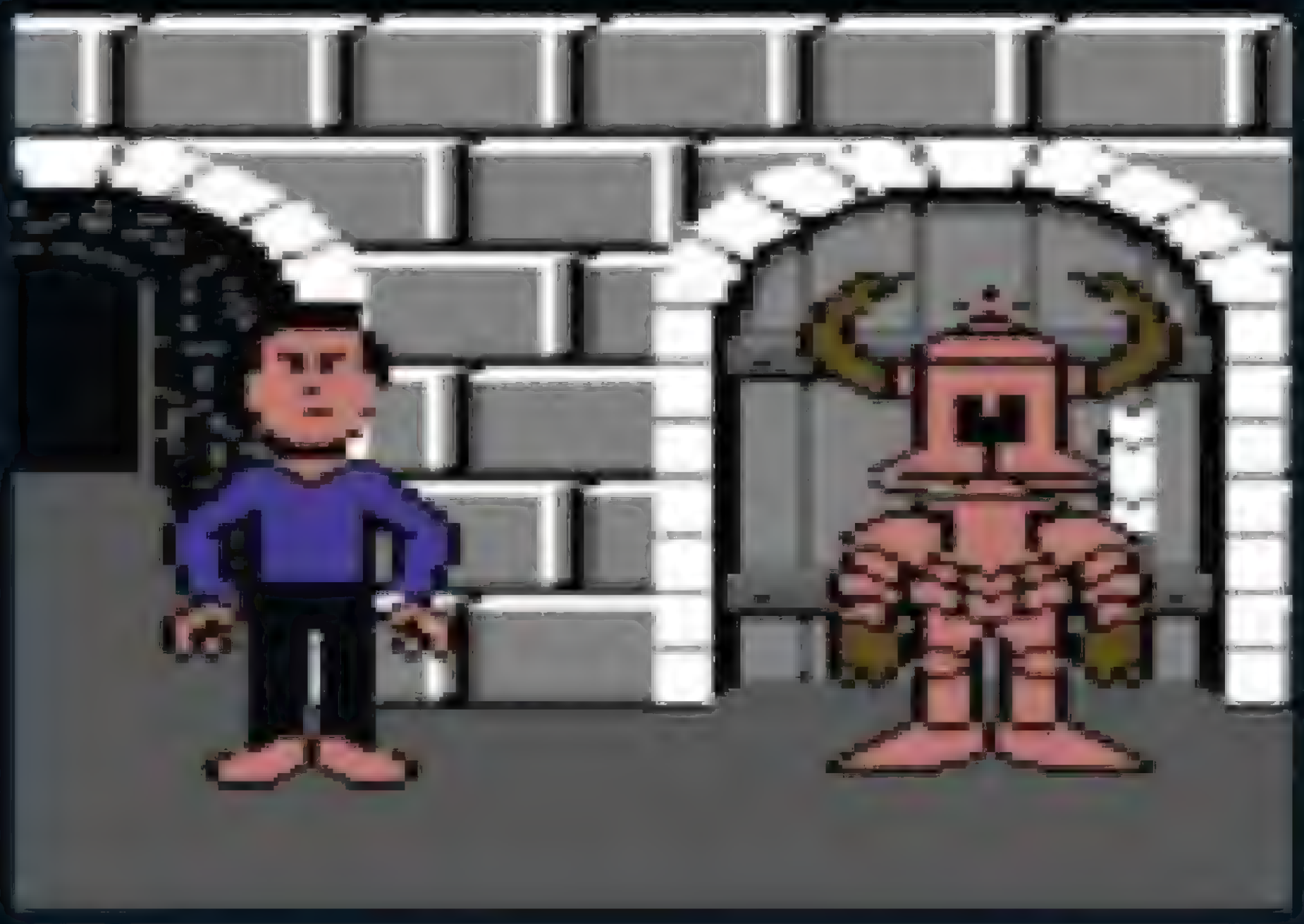
Open feature

SCUMM ORIGINS

Remarkably, it's over 25 years since the famous SCUMM adventure system saw the light of day in Maniac Mansion. Mike Bevan celebrates the anniversary of the famous engine with Ron Gilbert, Tim Shafer, Aric 'Scumm Lord' Wilmunder and assorted LucasArts alumni

Walk to mansion
Use Sam
Pick up dog

» [C64] *Labyrinth*, Lucasfilm Games' graphic adventure based on the Jim Henson movie, was a stepping stone towards SCUMM.



I remember when I was first building that engine, I never thought it would be used beyond *Maniac Mansion*, it was just a tool to get that game done," declares a bemused Ron Gilbert. "The fact that a lot of LucasArts adventures that followed used that engine, and then when I started Humongous Entertainment we licenced the SCUMM system and used that engine for all the kids games we built, and the fact it's still being used today is quite amazing to me."

"Considering how haphazardly put together and poorly programmed the whole thing was, that's more amazing!" quips Ron's *Monkey Island* collaborator Tim Schafer, who is sitting in on our call to Double Fine headquarters in San Francisco.

Jovial banter between longtime friends aside, it's an astonishing achievement. The little scripting language that Ron cobbled together for the Commodore 64 is still powering the *Monkey Island* special editions on multiple platforms from Xbox 360 to iPhone a quarter of a century on. Did the men behind SCUMM, an acronym for 'Script Creation Utility for *Maniac Mansion*', ever dare to dream that would happen?

"I'm not sure at what point we all became aware of the potential," says Chip Morningstar, the programmer that assisted Ron in SCUMM's inception. "We were just trying to get *Maniac Mansion* done in a timely fashion. The slowly dawning awareness of the consequences kind of just crept up on us. But of course it's entirely possible that Ron had visions of world domination from the very beginning, because that's just the kind of guy he is…"

> It's possible that Ron had visions of world domination from the very beginning…

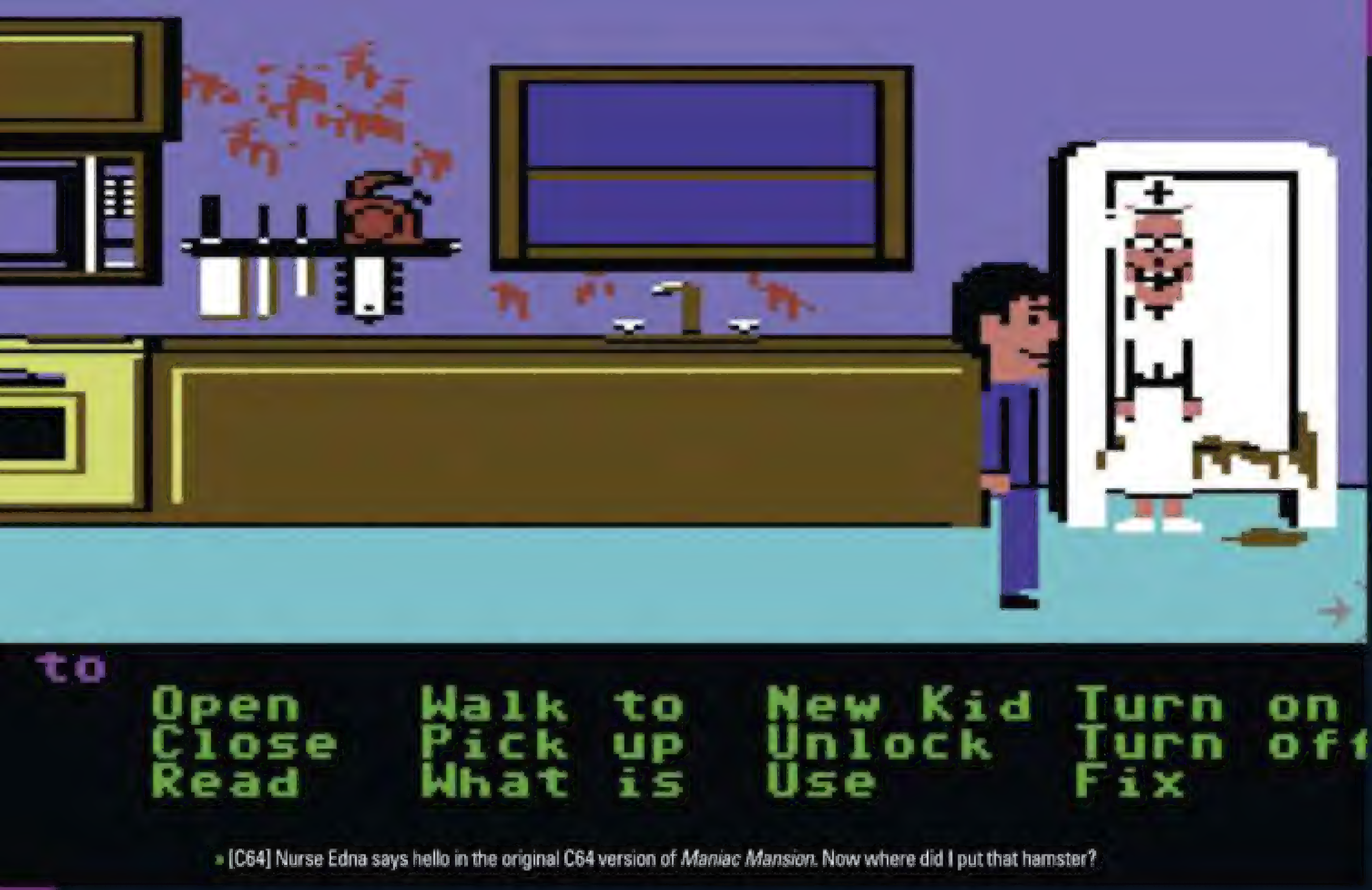
"Ron had the important insight that in a lot of games, the stuff that requires really delicate, performance tuned programming – mainly graphics rendering – was stuff that you tried to get right once and then left alone because futzing with it was treacherous. Whereas the parts that were subject to a lot of revision throughout development – namely, the game logic – were not terribly performance sensitive and so could be implemented in an easy to program, easy to update, and easy to debug scripting language and not suffer any particular performance penalty. So Ron came to me with this insight, which seemed obviously right to me, and asked how hard it would be to write a compiler and I said, 'No problemo, I can do that.' And he specified the language and byte code scheme and I wrote him a compiler that translated from one to the other."

"The language was more Ron and Chip's brainchild at the start," explains former LucasArts programmer Aric Wilmunder, who migrated the SCUMM system to the successful PC platform, "since I believe I was working on *Habitat* at the time. I was responsible for the *Habitat* animation system and walking code and a version was used in *Maniac* so that's how I first became involved."

"I played the *King's Quest* games right as I was starting out thinking of *Maniac Mansion*," recalls Ron, "and the thing that always bothered me was the parser because I didn't like to type, and it was really a matter of not wanting to type things and getting round that little game I called 'second guess the parser' where you knew the thing on the screen that you wanted to manipulate but you just couldn't guess what the programmer called it so you just kept guessing all these names… it just made more sense to me to just point

⇨

Talk to Sofia



» [C64] Nurse Edna says hello in the original C64 version of *Maniac Mansion*. Now where did I put that hamster?

at an object and 'touch' it if you wanted to manipulate it."

"And he's a bad speller," laughs Tim. "Ron's personality is that he's often frustrated with the counter-intuitiveness of everyday interactions, at the ATM or in the supermarket or whatever, he'll be designing more streamlined systems for it. That's like a natural Ron tendency…"

"There was a little bit of work done with that with the *Labyrinth* game before SCUMM at Lucasfilm," Ron acknowledges. "I think that was the first 'dipping the toe' in that kind of water, although they still had a parser, and still did adventure stuff, but they didn't quite fully embrace the point-and-click adventure."

We ask if Ron can explain the basics behind SCUMM in terms that this **RG** writer can fathom. "SCUMM is broken into two categories," he obliges, "there's a programming language which you type in with an editor and compile with a compiler, and the other part is all the tools that we had to do animation and sounds, to find objects – virtually every tool was something we wrote ourselves with the exception of graphics editing – originally we used Deluxe Paint and later Photoshop."

"SPUTM was the only thing you had to port right?" asks Tim.

"Yes, SPUTM was the run-time engine," replies Ron.

"That was the program that the end-user ran that would initialise the graphics and sounds, read the files from the disk, and interpret the scripts and data in those files to run the game," adds Aric. "When we shipped a game we would rename the interpreter to Monkey.exe or Dig.exe, but during development this tool was called SPUTM, which stood for 'Scumm Presentation Utility (TM). The name wasn't really trademarked, but we wanted to name it after another bodily fluid."

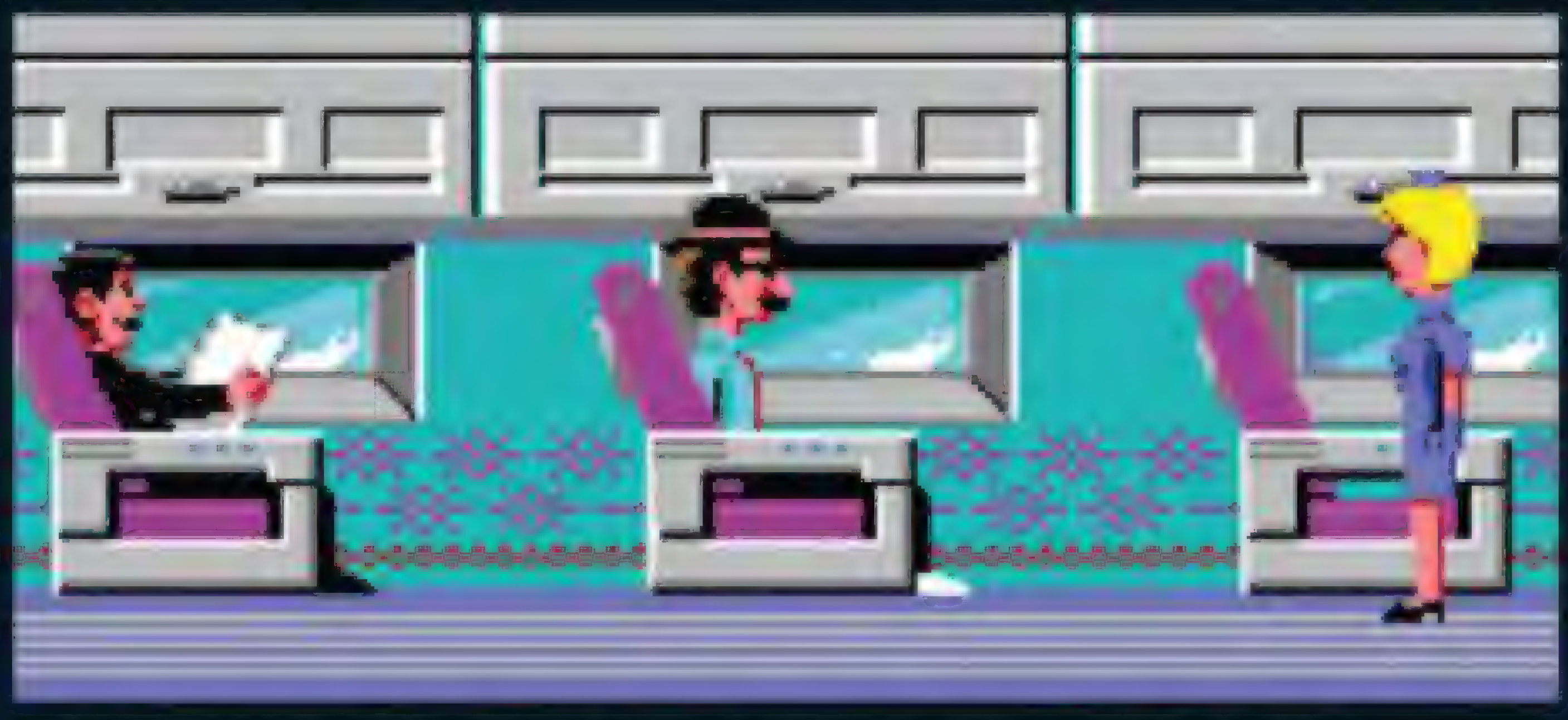
"SCUMM was the tool that tokenised the scripts and merged all of the game assets together into the files that we shipped on the disk. The version of SCUMM that was used for *Maniac* probably shared 80% or more of the commands used in later games such as *Full Throttle*. Once the language was developed, most of the key commands did not require modifications; 'Walk Bernard to clock' and 'Walk Ben to motorcycle' were essentially unchanged. Probably the most distinctive part of SCUMM was that it was multi-tasking. This meant that multiple scripts could effectively run simultaneously."

Talk to Green Tentacle

"I got a Computer Science degree from college," Tim says, "and I was programming in C language, then my first job was programming SCUMM and I completely forgot how to program in C, it kind of ruined me for programming! SCUMM takes pride in being an English readable language – you can look at it and read it and it will say 'Guybrush walk to window, say this line, walk over here, this is an object, here's a verb…' It goes out of its way not to have unnecessary brackets, strange symbols or weird naming conventions."

"Part of my goal when I first created it was for it to be a programming language that non-programmers could use," says Ron. "I don't know if the language ever fulfilled that ultimate goal but a lot of what Tim mentions was a result of that initial desire. I wonder if I'd known that the SCUMM system would become so popular and well-known should I have named it something different… although the fact that it was named the SCUMM system was probably part of the reason it did become so famous…"

Part of my goal was for it to be a programming language non-programmers could use



» [Amiga] SCUMM's portability meant that games like *Zak McKracken* was easily converted.

"The most important thing was that the rules for naming all the tools had be based on disgusting bodily fluids, of course," Tim reminds us. "If you let a bunch of programmers come up with their own names they'll come up with the worst ones possible!" Which explains how SPIT (a font editor), FLEM (a graphical room management tool), BYLE (an animation tool for digital 'actors') and others came into being.

"For a short time we had a tool that we called SMEGMA," Aric says. "One of the programmers had a child and told us that when babies are born, their first bowel movements consist of this. Well, he was mistaken."

"We thought that was a really great word and we had it as the name of the tool until we went and looked up the meaning," chuckles Ron. "And then very quickly it didn't become the name of the tool…"

"As you can probably imagine, standing near us in the lunch line was probably a bit unsettling as we talked about SCUMM, BYLE, MMUCUS, FLEM, et al," says Aric.

"The one thing I did on *Maniac Mansion*," divulges Tim, "the tiniest touch I had on it was that when we converted it to Nintendo all the objects were slightly mis-tagged so I had to go into every room and push the tags around. But it shows up on my Mobygames profile so whenever I'm introduced somewhere it's like 'Tim's first game was *Maniac Mansion*…'"

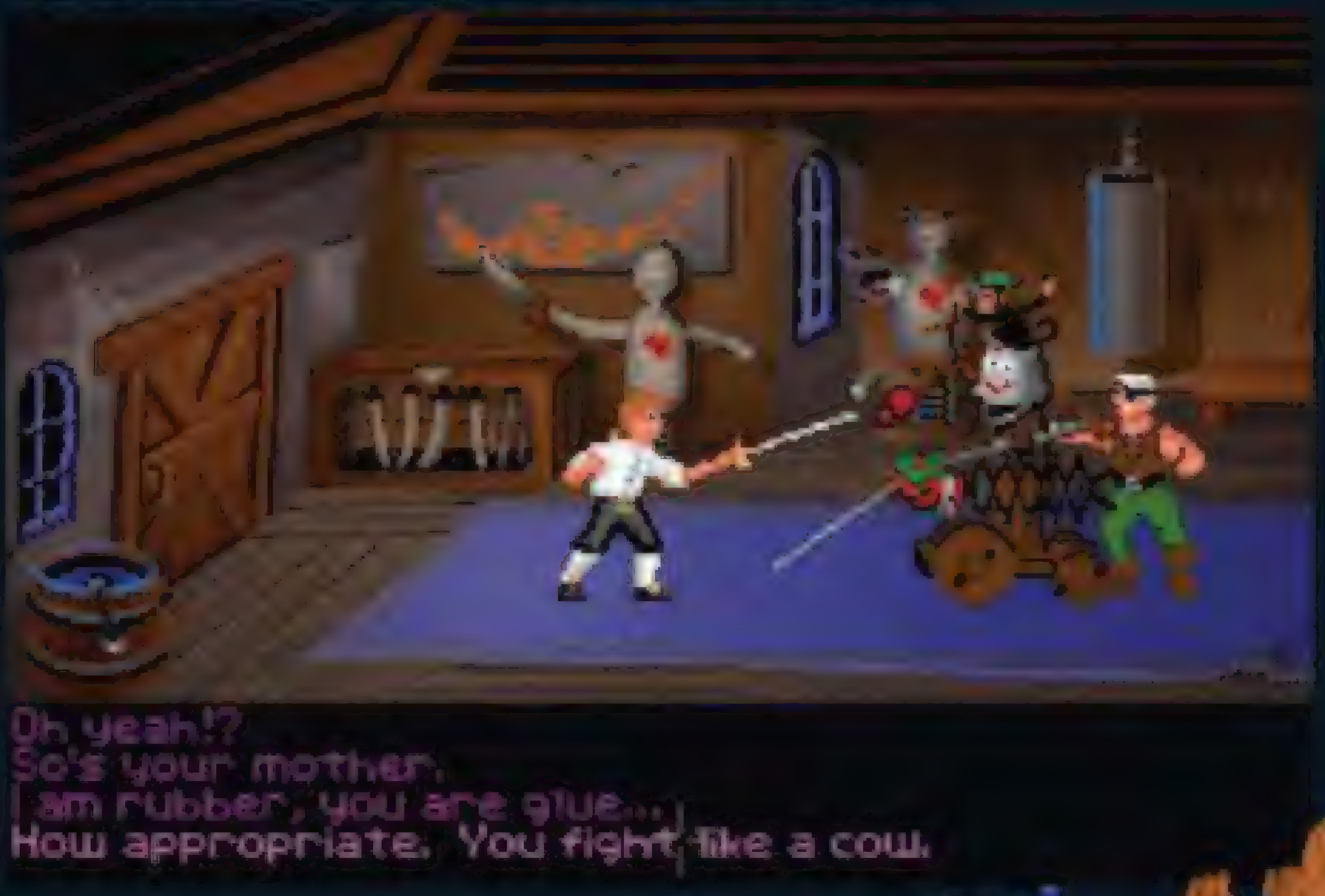
So seeing as Ron admits he created SCUMM solely for the purpose of getting *Maniac Mansion* done without an enormous headache, how did it come to wind up in so many other games? "That was really because of *Zak Mckracken*," explains Ron, "because David Fox was one of the programmers on *Maniac Mansion* and he wanted to go off and do his own game, and I think he just became so used to the SCUMM system, and he wanted to do an adventure game, and he liked the point-and-click stuff, so I think using the engine for *Zak* was a natural evolution. I had to make a few changes because there were parts of SCUMM that were very hard-coded for *Maniac*, and I had to remove all that stuff. Once I did that the system became very generic, it wasn't about a single game any more; it was a generic tool that could be used for anything. It had broken out and everybody started looking at using it."

"One of the most powerful things about SCUMM," notes Tim, "was that we would do all this programming to make the gameplay work and then we wanted to do the Amiga and the Atari ST versions, all you had to re-write was SPUTM, and then the SCUMM files were all totally identical. I don't remember that being a common practice back then: the scripting language being separate from the game code."

"Well Infocom with *Zork* and their text adventures, had this engine called the Z-engine that they used to build their games," says Ron, "and I think Sierra had an engine too, but I think one of the things that Lucasfilm really did with the SCUMM engine early on was porting all these other platforms, and as Tim described, once you've ported SPUTM, games like *Maniac Mansion* and *Monkey Island* just ran so quickly on all of these platforms."

"Infocom's games were created using a massive DEC mainframe, kept in a refrigerated clean room guarded by priests in lab coats," says ex-Infocom ⇨

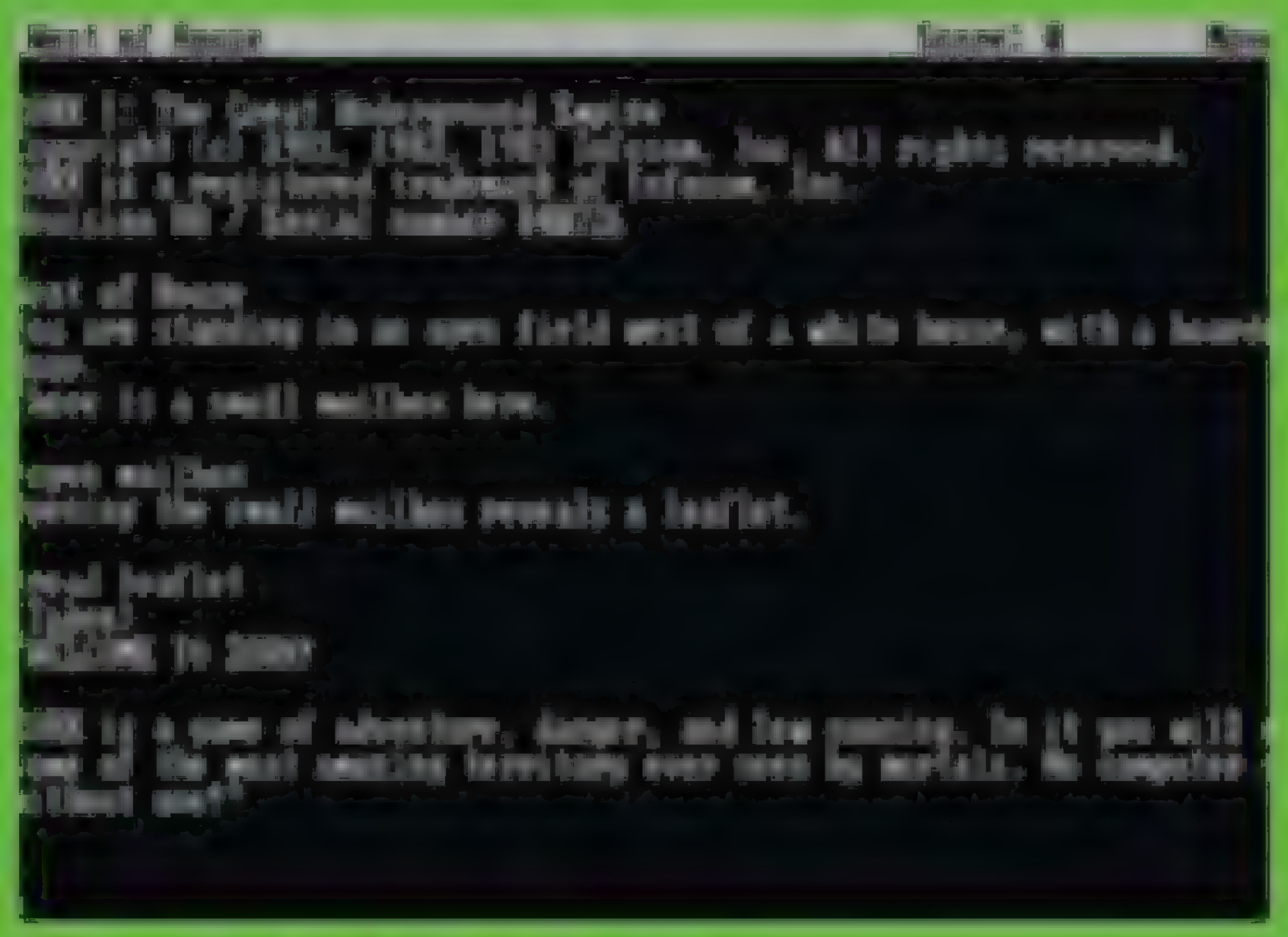
» [PC] Guybrush, fighting like a dairy farmer in *The Secret of Monkey Island*.



Oh yeah!?
So's your mother.
I am rubber, you are glue...
How appropriate. You fight like a cow.

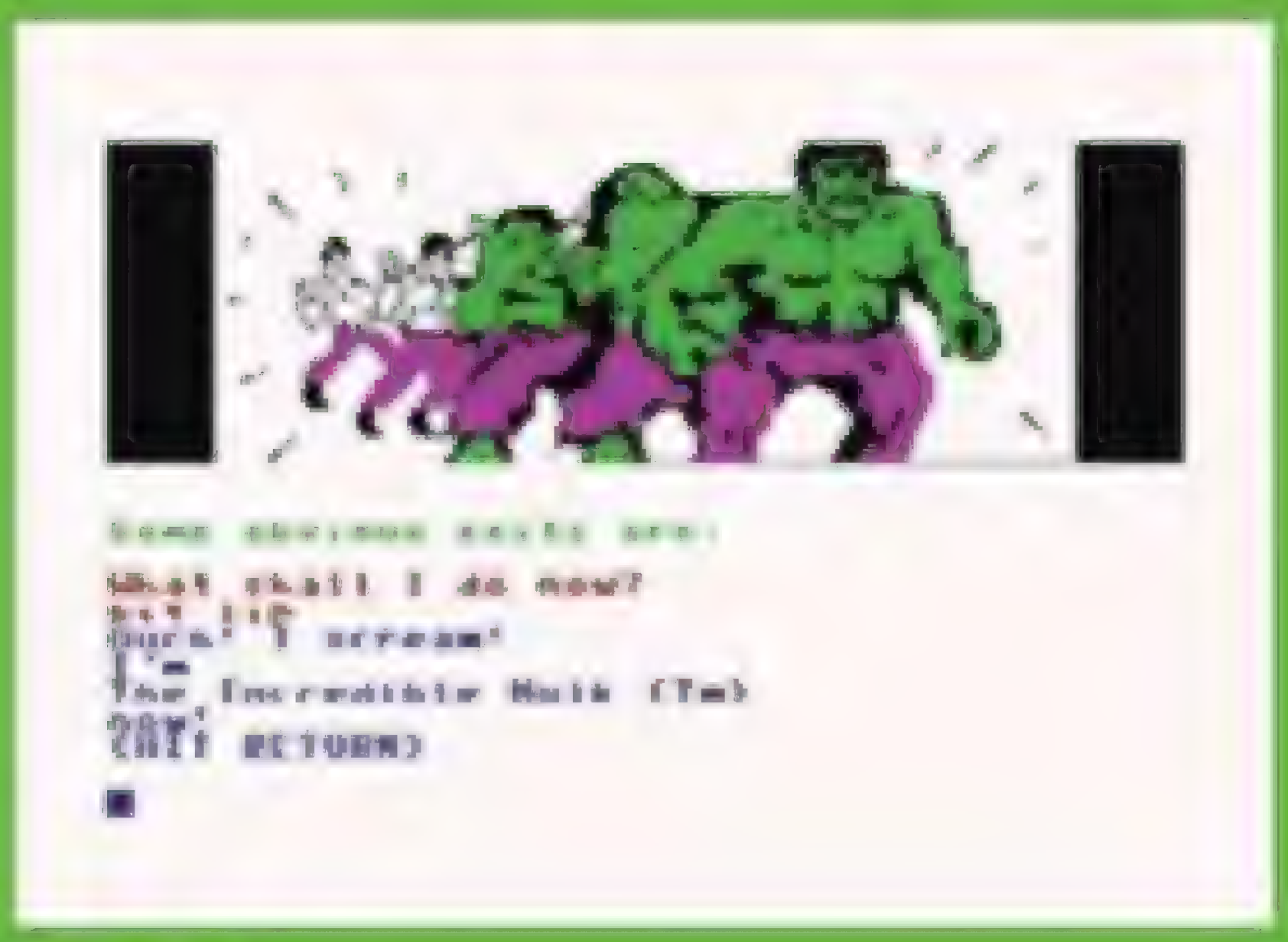
ADVENTURE GAME ENGINES – BEFORE AND AFTER SCUMM

Pick up Sofia



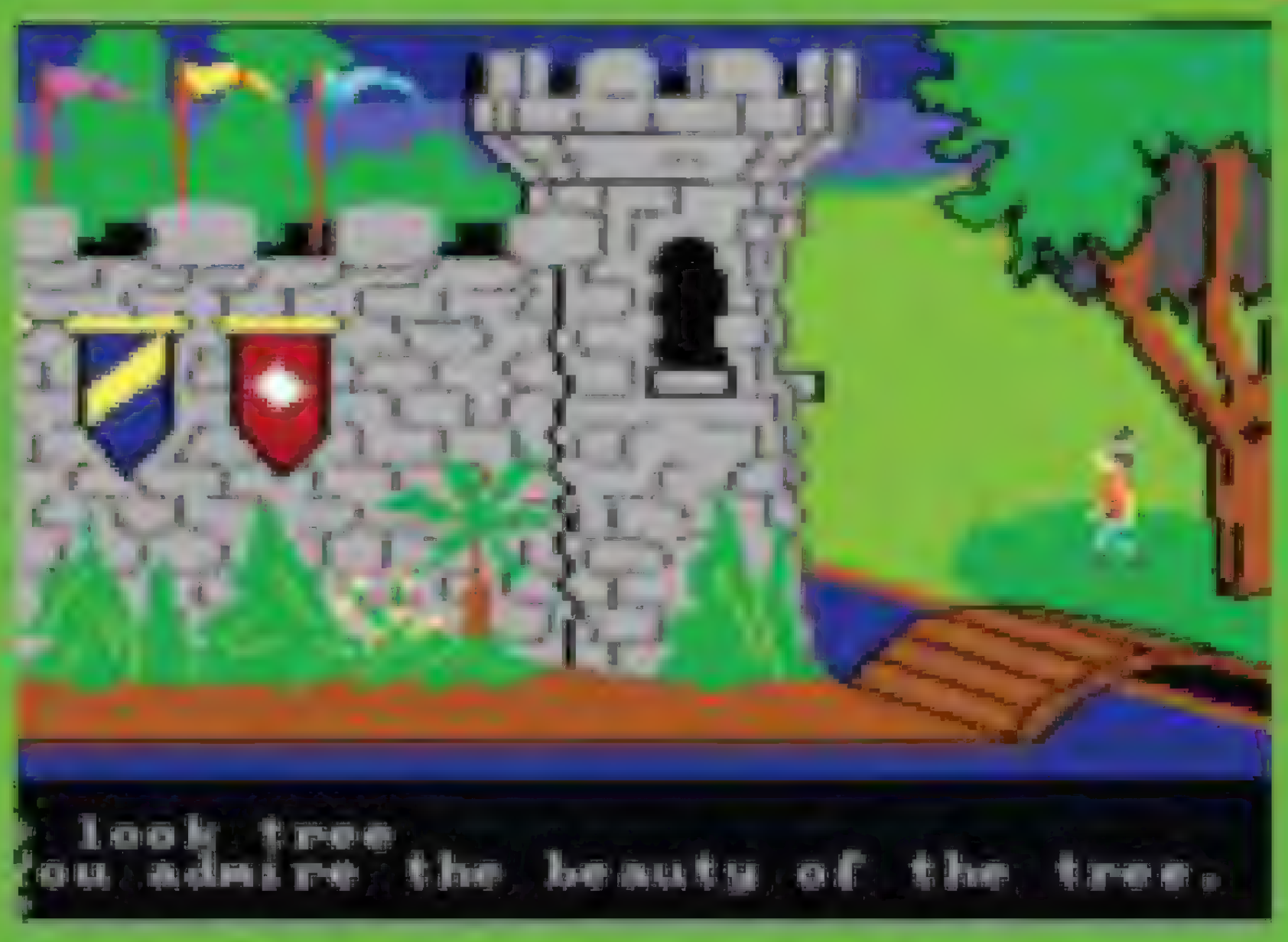
ZIL (Z-MACHINE)

From Infocom's legendary text-based game *Zork*, ZIL (Zork Implementation Language) was conceived, with an advanced parser that recognised complex sentence structures, and Z-Machine, a 'virtual machine' allowing for compatibility on any home computer platform.



SAGA

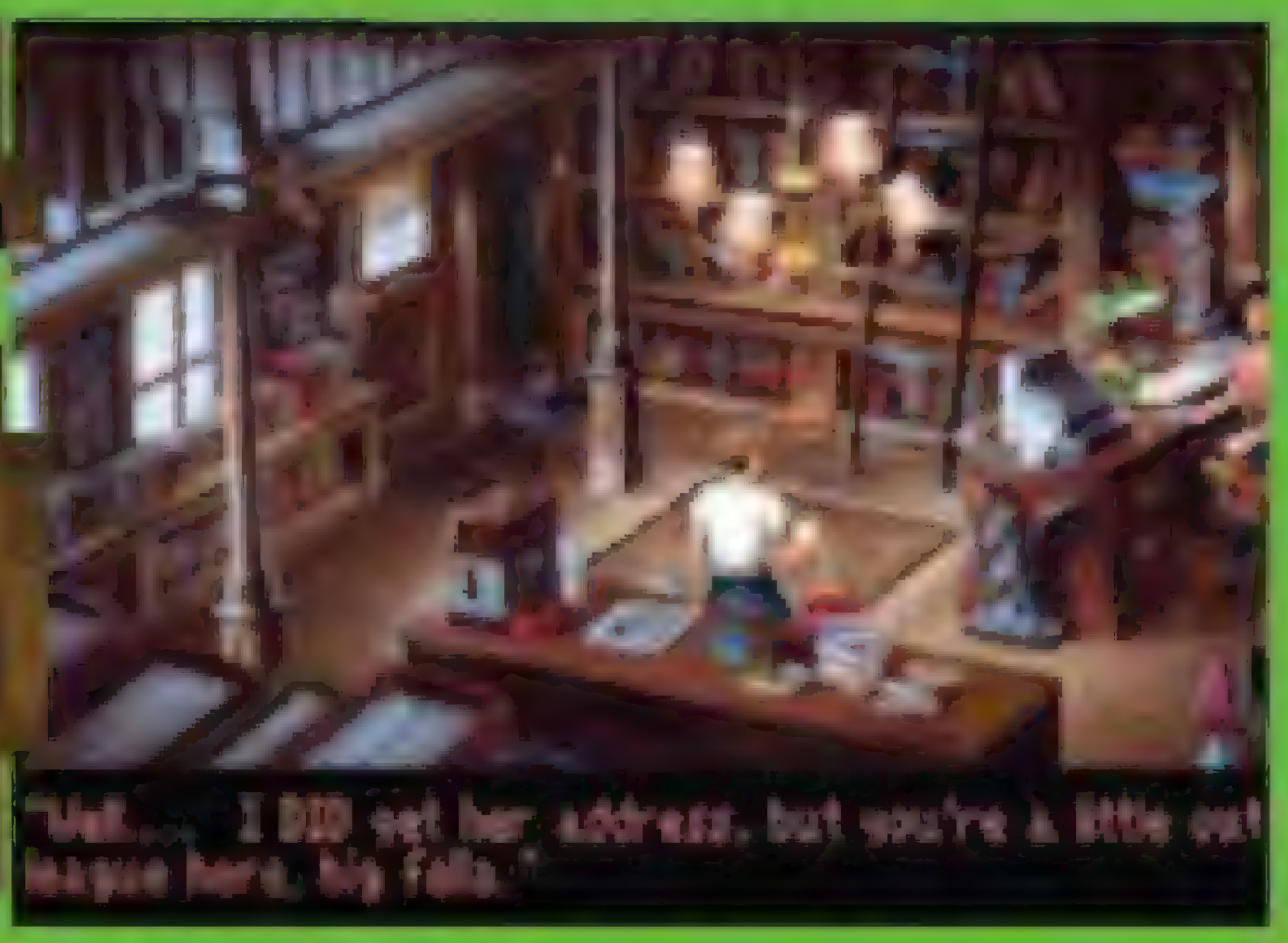
An updated version of the original two-word text-only parser system in the early Scott Adams adventures, SAGA allowed simple disk-based graphics. An expanded version, SAGA+, with full sentence parsing, was used near the end of the company's run on several superhero games.



look tree
You admire the beauty of the tree.

AGI (ADVENTURE GAME INTERPRETER)

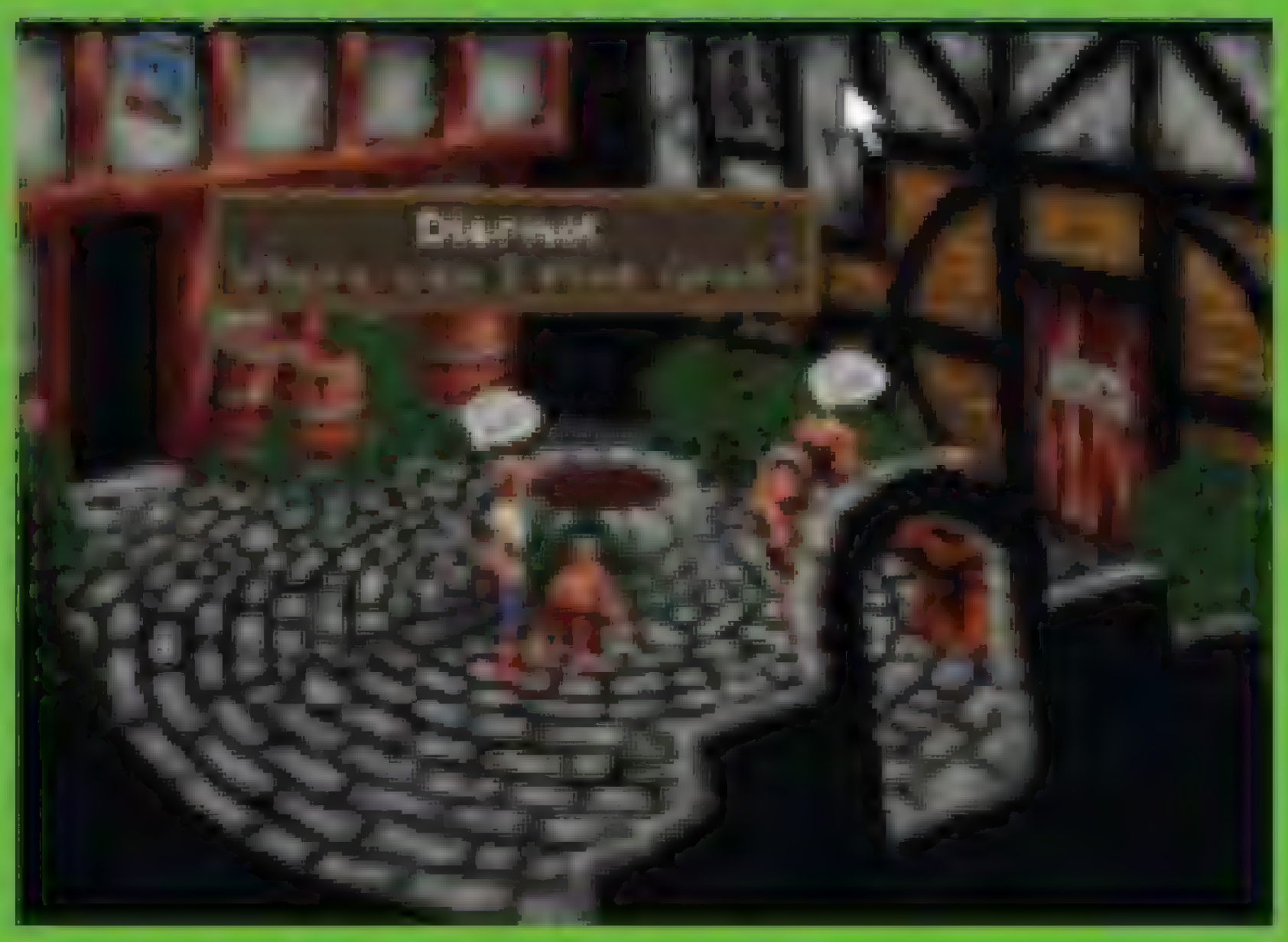
Originally created for Sierra Online's *King's Quest*, the AGI engine allowed a text parser to be combined with a graphic background on which the player's animated character moved around. The engine and interface went on to be used in several Sierra games.



"Well... I DID get her address, but you're a little out
league here, big fella."

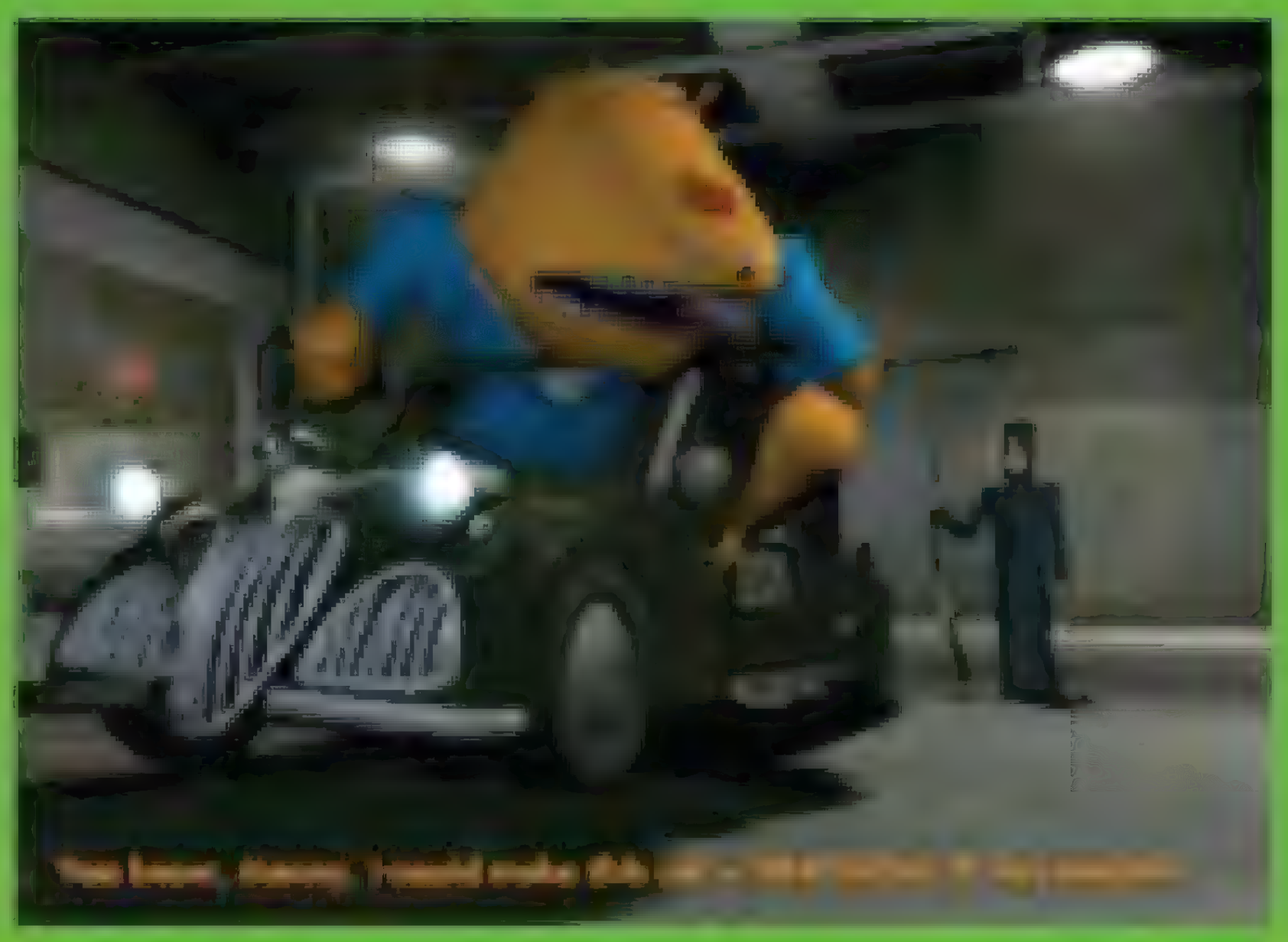
SCI

Used from *King's Quest IV* onwards, initially incorporating a graphic engine and parser, the second version of SCI integrated a fully mouse-driven interface, similar to that of the SCUMM adventures, and 256 colour graphics. The enhanced engine was used for several others such as *King's Quest V*.



VIRTUAL THEATRE

First seen in *Lure Of The Temptress*, Revolution Software's engine had a SCUMM-style mouse-driven interface and allowed 'virtual actors' in the game world to exhibit AI and move around independently. Improved versions of the engine were used for *Beneath A Steel Sky* and *Broken Sword I* & *II*.



GRIME

The LucasArts adventure engine that followed SCUMM, GrimE was one of the first to embrace the 3D perspective in the genre, requiring keyboard or joystick rather than mouse control. It was used for just two titles – the acclaimed *Grim Fandango* and the less well received *Escape From Monkey Island*.

THE CLASSIC LUCASARTS SCUMM ADVENTURES

MANIAC MANSION (1987)

Originally conceived for the Commodore 64, *Maniac Mansion* is a heartwarmingly wacky broth of B-movie and comedy horror tropes, featuring the pioneering mechanic of controlling three separate characters throughout its storyline. Based loosely on the layout of the Skywalker Ranch, it's the game's bizarre antagonists, Dr Fred, Nurse Edna, Green and Purple Tentacle, and the aptly named Weird Ed, that create its most hilarious moments.

MANIAC MANSION

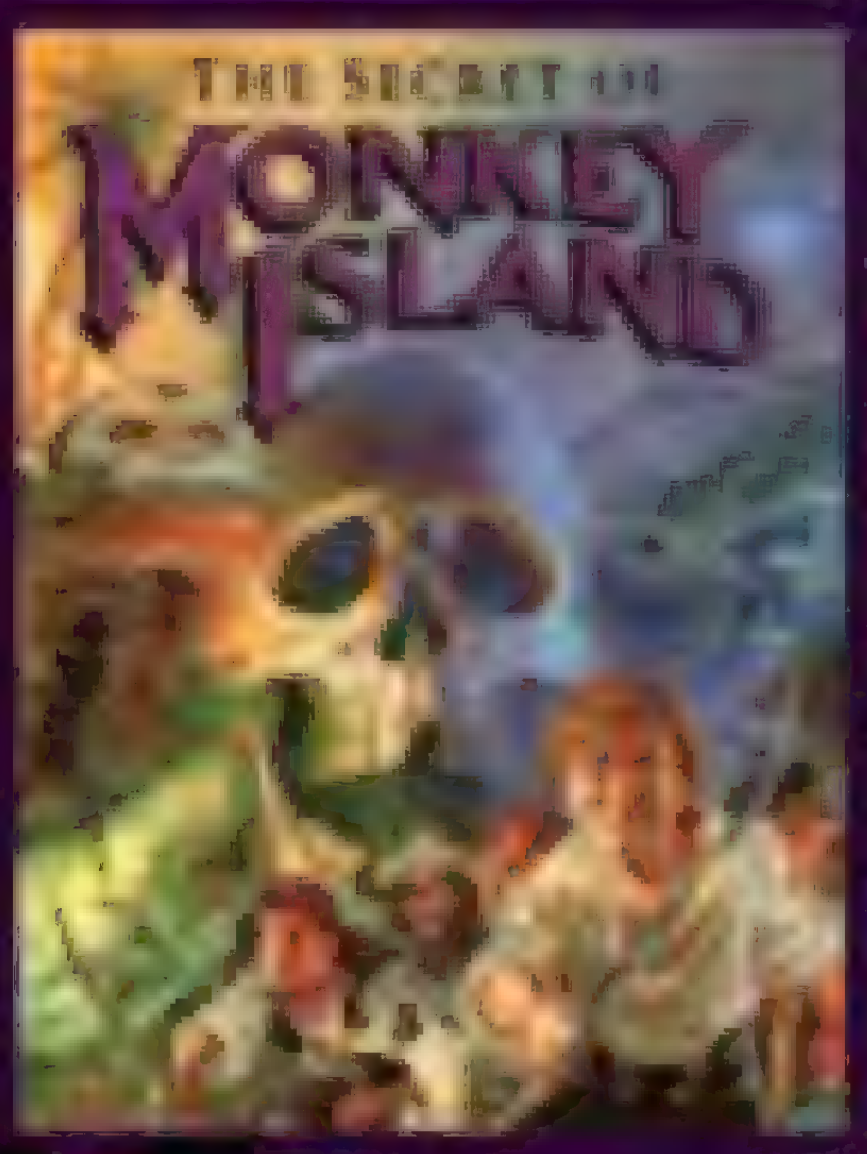
MONKEY ISLAND

MONKEY ISLAND 2: LECHUCK'S REVENGE (1991)

Bigger, with added simians, *Monkey Island 2* is a master class in writing an adventure sequel, fleshing out the beloved characters of the original and providing our hero with more wonderfully humorous Caribbean islands to plunder with his rapier-like wit. And ultimately, Guybrush's quest for the 'fabulous treasure' of Big Whoop turns out to be something that not even the mightiest grog-swilling pirate could ever have expected…

THE SECRET OF MONKEY ISLAND (1990)

Monkey Island introduced us to the dubious charms of Guybrush Threepwood, insult sword-fighting ("How appropriate, you fight like a cow…"), and one of adventure gaming's best villains, the evil ghost pirate LeChuck. With a tight, very funny script by Ron Gilbert, Tim Schafer and Dave Grossman. 22 years on, it remains a perfectly formed adventure.



LOOM (1990)

Loom's designer Brian Moriarty started out on Infocom text adventures like *Beyond Zork* and *Wishbringer*, and this ethereal fantasy title was equally innovative. The interface integrated a musical distaff that could be played to create various four-note tunes, each tied to a different spell in the game, used by protagonist Bobbin Threadbare.

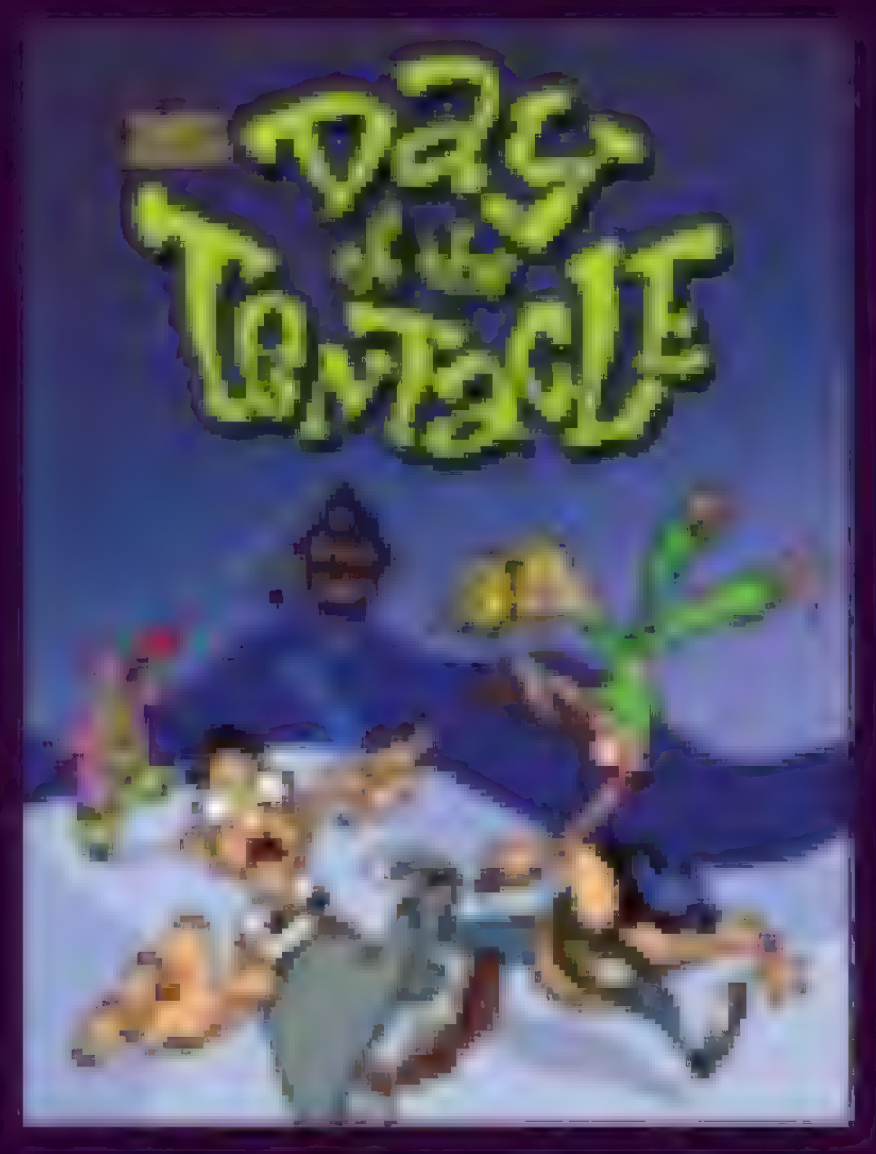
INDIANA JONES AND THE FATE OF ATLANTIS (1992)

Hal Barwood's graphic adventure sees Indy attempting to foil a Nazi plan to unearth the ancient civilisation of Atlantis, with glamorous sidekick Sophia Hapgood in tow. With an epic storyline, excellent scripting, and an impressive array of locations from the jungles of Peru to ruins of ancient Greece, and the deserts of North Africa, it's still arguably the finest Indiana Jones game ever made.

INDIANA JONES and the FATE of ATLANTIS

DAY OF THE TENTACLE (1993)

The beautifully animated sequel to *Maniac Mansion* sees the return of Dr Fred and those diabolical Technicolor tentacles in a time-travelling romp through Colonial America. Various strange plot shenanigans, including Benjamin Franklin's 'helicopter', the Chron-o-John, kumquats, and cow tipping await. This is probably the weirdest of all the SCUMM adventures, in a good way.



SAM & MAX HIT THE ROAD (1993)

Springing from the warped imagination of artist Steve Purcell, *Sam & Max* follows the crime-fighting antics of a sardonic be-hatted canine and a three-foot hyper-manic bunny rabbit. Mixing film noir with a Looney Tunes aesthetic, art and animation-wise it's another fantastic achievement, and provides a cinematic gaming experience.

Sam & Max
HIT the ROAD

ZAK MCKRACKEN AND THE ALIEN MINDBENDERS (1988)

The second Lucas adventure to use the SCUMM engine, David Fox's tale of a hapless reporter on the trail of aliens improbably ties in transcendental meditation, two-headed squirrels, overpriced air travel and a goldfish called Sushi. *Zak* deliberately set out to break free of restrictive locations.

ZAK McKRACKEN

INDIANA JONES AND THE LAST CRUSADE (1989)

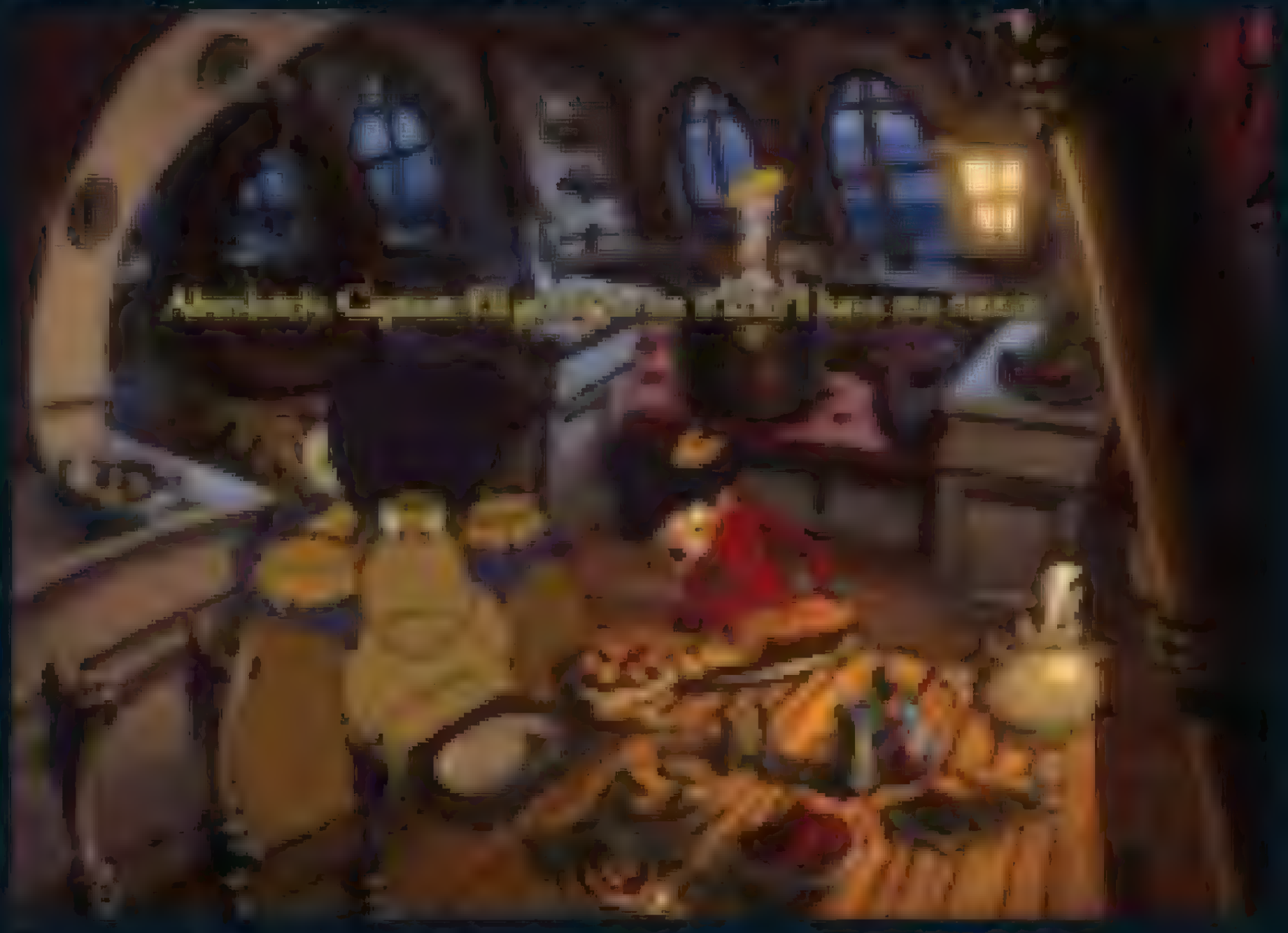
The only movie-licenced SCUMM adventure, as with the film *Last Crusade* concerns Indy's quest for the Holy Grail, taking in detours to Venice, Nazi-occupied castles and Zeppelin rides en route. The new IQ (Indy Quotient) system added replay value, awarding points for finding different ways to solve certain puzzles, or fighting enemies.

adventure creator Brain Moriarty, when, like Guybrush Threepwood, we ask about *Loom*. "All of the game designers shared the mainframe via a network of terminals. The language we used, ZIL (Zork Implementation Language) was similar to LISP. It was undoubtedly the most advanced game development environment on the planet. We actually had more computing power at our disposal than many third-world countries."

"SCUMM, on the other hand, had a more casual, homebrew feel. There were no refrigerated rooms or priests, and I never saw anyone in a lab coat, though you might occasionally glimpse a weirdo in a Darth Vader suit lurking outside the gate of Skywalker Ranch. The compiler and tools ran on ordinary PCs. The SCUMM scripting language was very simple, but capable of doing just about anything within the limitations of the target systems. *Loom*'s design was directly influenced by the capabilities of SCUMM. I studied the compiler and toolset and asked myself, "What sort of strange, magical experiences will this system support?"

We ask Ron how significant he thinks the SCUMM engine was for LucasArts. "I think it was really important," he admits. "When I started at Lucasfilm we couldn't make *Star Wars* games because they had licenced them to someone else, and since we really couldn't do the number one thing that the company was known for it really forced us to have to create new things. I think the SCUMM system was integral in that because it gave us this easy way to do these games that were predominantly about story, which was something Lucasfilm was known for, and I think it attracted the sort of people who wanted to do those types of games to the company."

"We had this thing called SCUMM University when I first got to LucasArts," remembers Tim. "Every afternoon Ron would come up and tell us how to do one thing like 'Here's how you add a room to the game' or 'Here's how you add a character.' We had this *Sam & Max* art that Steve Purcell had made just for SCUMM U, which was Sam and Max's office, which I don't think ever saw the light of day. It had a few animation states – a static-y television set, rabbit ears made out of a coat hanger that could be in two different positions, and we'd go 'I'm gonna make the static on the TV animate' and then we'd spend all day doing that, and by the end of it we were pooling in art assets from *Indiana Jones*, and all the Scummlets started making their own crazy, weird improvisational SCUMM games set partially in the *Sam & Max* universe. I had a remote-control car in mine that would drive through a mouse hole in their office and then would come out of a filing cabinet in Nazi Germany,


» [PC] Guybrush Threepwood's name came in part from simply referring to the un-named character as "guy" in development.

> All the Scummlets started making their own crazy, weird improvisational games

FULL THROTTLE (1995)

By the time of Tim Schafer's futuristic biker-themed adventure, the integration of the INSANE engine (originally created for *Rebel Assault*) into SCUMM meant that mixing real-time computer-generated animation with pre-rendered cutscenes became a possibility. *Full Throttle* embraced the movie style fully, as seen in its panoramic opening sequence, and with Mark Hamill playing the game's main antagonist.

FULL THROTTLE

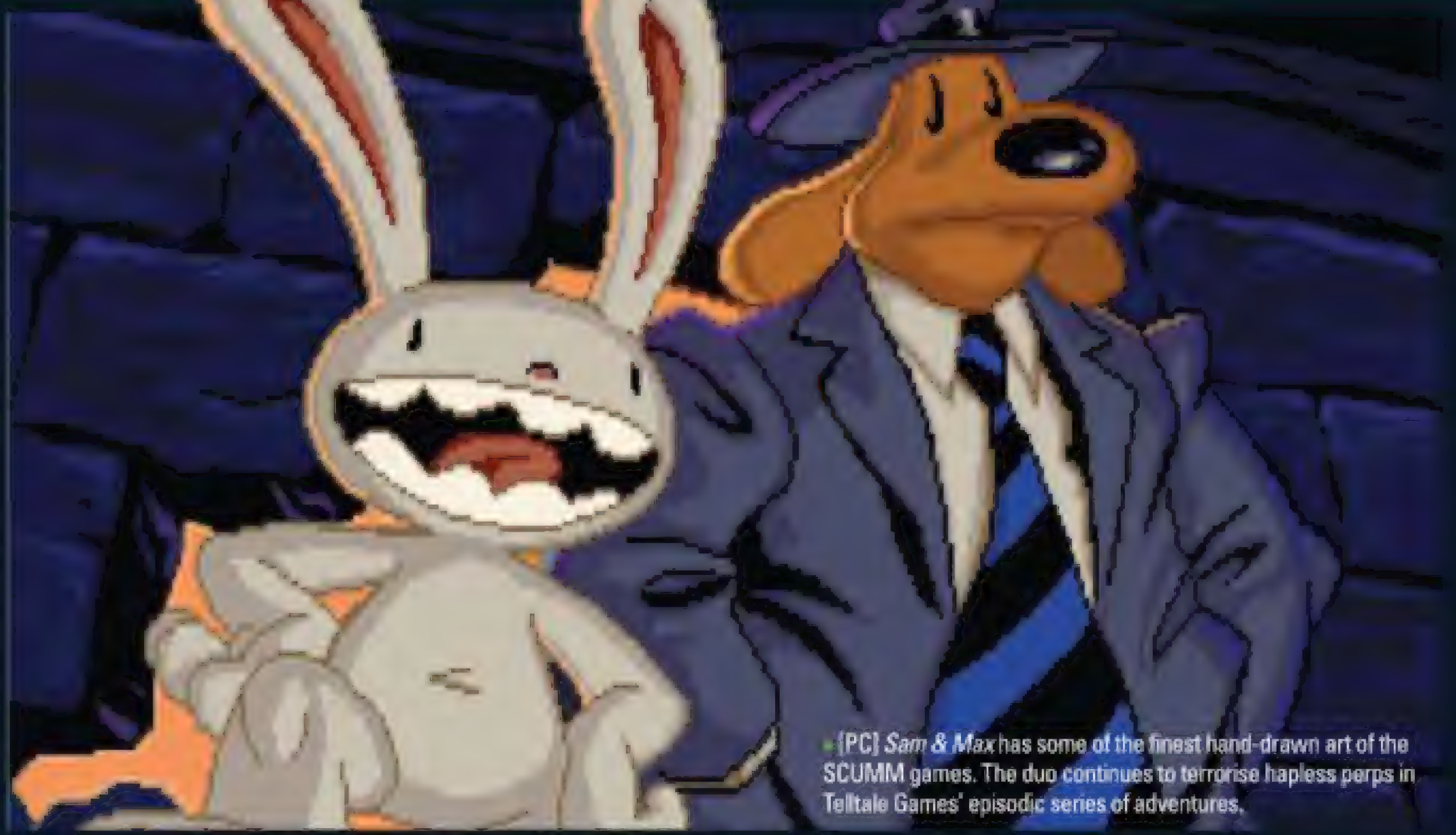
THE DIG (1995)

Based on a story by Steven Spielberg, *The Dig* had the most troubled gestation of all of the LucasArts adventures, with a six-year development period during which it went through four different project leaders. Using a mix of traditional hand drawn graphics and pre-rendered sequences, the resulting game is an intriguing hotchpotch of science-fiction themes, as a Space Shuttle crew explore a mysterious asteroid, and discover more than they bargained for.

THE CURSE OF MONKEY ISLAND (1997)

The third *Monkey Island* features a revised cartoon art style and full voice acting, giving it a radically different feel to the previous two games. *Curse* has its fair share of genuinely funny moments, such as the encounter with Murray the talking skull, and the 'legend' of El Pollo Diablo, and while not quite matching the brilliance of its predecessors it's a quality instalment.

THE CURSE OF MONKEY ISLAND



» [PC] *Sam & Max* has some of the finest hand-drawn art of the SCUMM games. The duo continues to terrorise hapless perps in Telltale Games' episodic series of adventures.

although we probably shouldn't talk about that…"

"We were working with what we had," laughs Ron.

"Regarding Scummlet training, I think that one time it was at the Ranch and everyone was up on the third floor of the main house," remembers Aric. "George's offices were on the second floor so they had to be well behaved."

"*Monkey Island* was the first game where I felt I had once-and-for-all figured out what an adventure game should be," Ron admits. "*Maniac Mansion* was just a mess from a design stand-point and *Indiana Jones And The Last Crusade* was starting to get a bunch of stuff figured out, but when *Monkey Island* came around, that's when I wrote an article called 'Why Adventure Games Suck' that outlined a dozen rules of adventure game design and *Monkey Island* was a test to see if all those things I had written about were actually true. I think that it's a much cleaner, tidier game than the other ones."

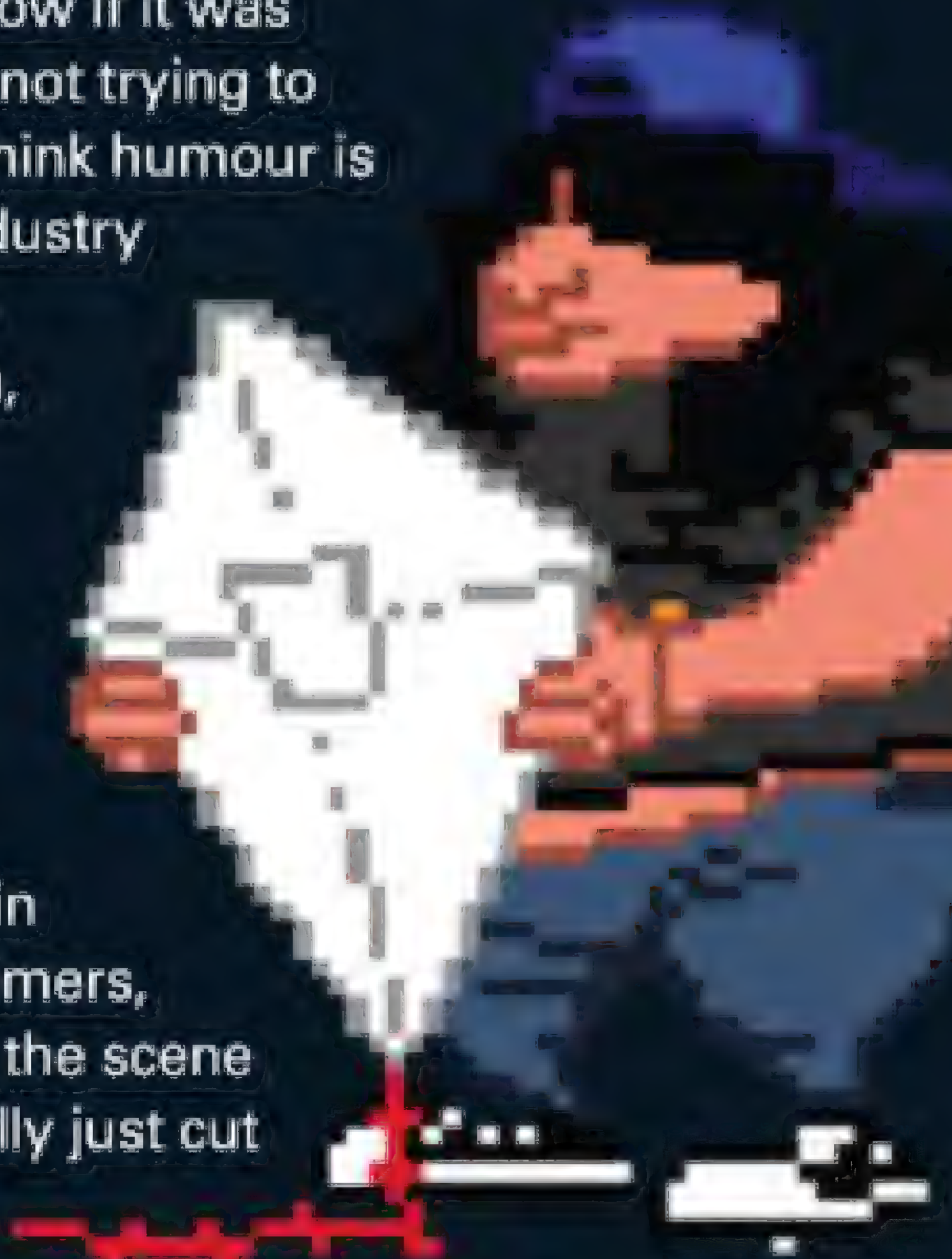
"I loved the *Pirates Of The Caribbean* ride, and I always wanted to make a game that existed in that world – that weird Caribbean-type environment with all these fun-loving pirates. For me, adventure games have always started with the world and the characters just sort of come out of that." At this point Tim points out that naming the lead character 'Guy-brush' kind of confirms this.

"What can I say? I just don't care about the characters…" Ron grins.

We offer that many of the SCUMM games succeeded because of their humour, from the wacky, Chuck Jones/Tex Avery style of *Day Of The Tentacle* and *Sam & Max* to the wrier, more Pythonesque comedy of *Monkey Island*. "The humour in *Sam & Max* was a little zany," says Ron, "but I think the humour in *Monkey Island* was a more 'sophisticated' humour."

At this point Tim starts to laugh. "Like that bit with the guy training with the sword-fighting machine and the bucket…"

"I guess the humour was a little drier, a lot of throwaway lines – those were all text bits read in a deadpan way, and Guybrush was always a bit of a deadpan guy in my head, and whenever I hear a voiced version of Guybrush, people are always 'telling' the jokes a lot more than I would imagine would be happening, so *Monkey Island* for me was, I don't know if it was 'sophisticated', but we were not trying to sell the humour so much. I think humour is a good way for the game industry to reach audiences because I think it's a mainstream idea, more mainstream than hyper-violence."



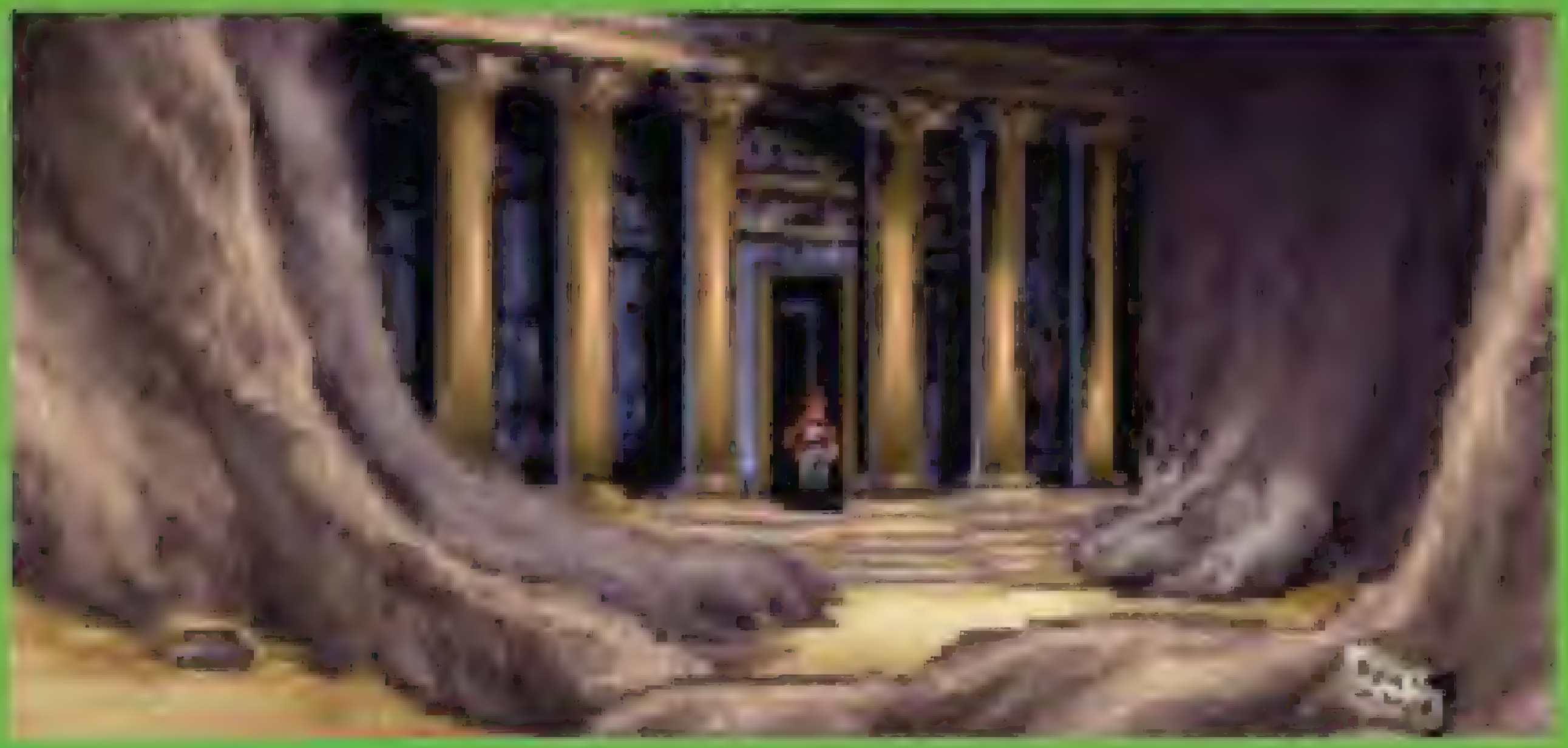
An interesting side note on SCUMM is the fact that it first introduced the term 'cutscene' to videogames. "The scenes that take place in the mansion, they were on timers, so when we decided to play the scene with Dr Fred we would literally just cut away from the game and play it, so that just became the shorthand, we called them 'cuts scenes' because they cut away from the game, and then there was a command in the SCUMM language that was called cutscene that handled all of the logistics – saving the game state, playing the cutscene and then restoring the game state when it was over. It was a bold point on the back of the *Maniac Mansion* box, people talked about them and that's how the word got connected and then grew into a more generic term."

"It's funny because it actually fell out of favour, like a time-driven cutscene, we decided we didn't want to do any more with the next game," says Tim.

"In *Monkey Island* we were tying cutscenes more into events that the player made happen by interacting with the world,

RON'S FAVOURITE SCUMM PUZZLE

"At the end of the *Indiana Jones And The Last Crusade* there's a scene where Indy has to step off a cliff, and all he's told in the lore from the Grail is that he just needs to have faith. In the movie he does this because there's some kind of quasi-camouflaged platform he lands on, and when we were doing the game we wanted to do something similar. The player just needed to click on the other side of the screen over the empty ledge, and if they did that the character would walk safely across. If they took too much time scanning around the screen with their cursor we decided they didn't have faith and when they'd walk off the ledge, they'd die. I always liked that puzzle because we were asking if players had faith in what we asked them to do."



With each new game we tried to push the boundaries and do things that hadn't been done before

Hi. I'm Guybrush Threepwood, ghost-busting stud.

» [PC] *Monkey Island 2* is a corker, apart from some of Guybrush's terrible lines.

Now I can finish TAKING OVER THE WORLD!

» [PC] The distinctive, Chuck Jones-inspired visuals of *Day Of The Tentacle* were quite a leap from the graphics of the original *Maniac Mansion*.

» [PC] *Full Throttle* was the first SCUMM adventure to combine real-time animated graphics with pre-rendered video cutscenes.

and it just felt a little cleaner," says Ron. "We actually had a rule at Humungous Entertainment, which was no cutscene can last longer than ten seconds. We knew from watching kids play games that if you took control away from them for more than ten seconds they would just lose interest."

As SCUMM evolved, games like *Full Throttle* and *Curse Of Monkey Island* began to integrate full motion video, replacing the traditional in-game cutscenes seen previously. However *Curse* would be the final LucasArts adventure to use the SCUMM engine. "The main reason we didn't use SCUMM for *Grim Fandango* is that Ron and Aric had left and we really needed someone keeping up the engine side of SCUMM," explains Tim. "The best programmers at LucasArts were working on projects like *Jedi Knight*, which were 3D engines. Because of the game *Bioforge* I wanted to do something 3D using pre-rendered backgrounds and so we decided to do a new engine. It was really the programmers' decision to use a new scripting engine from the University of Rio called Lua, which BioWare had also used for its first couple of games, instead of doing a whole new scripting engine from scratch."

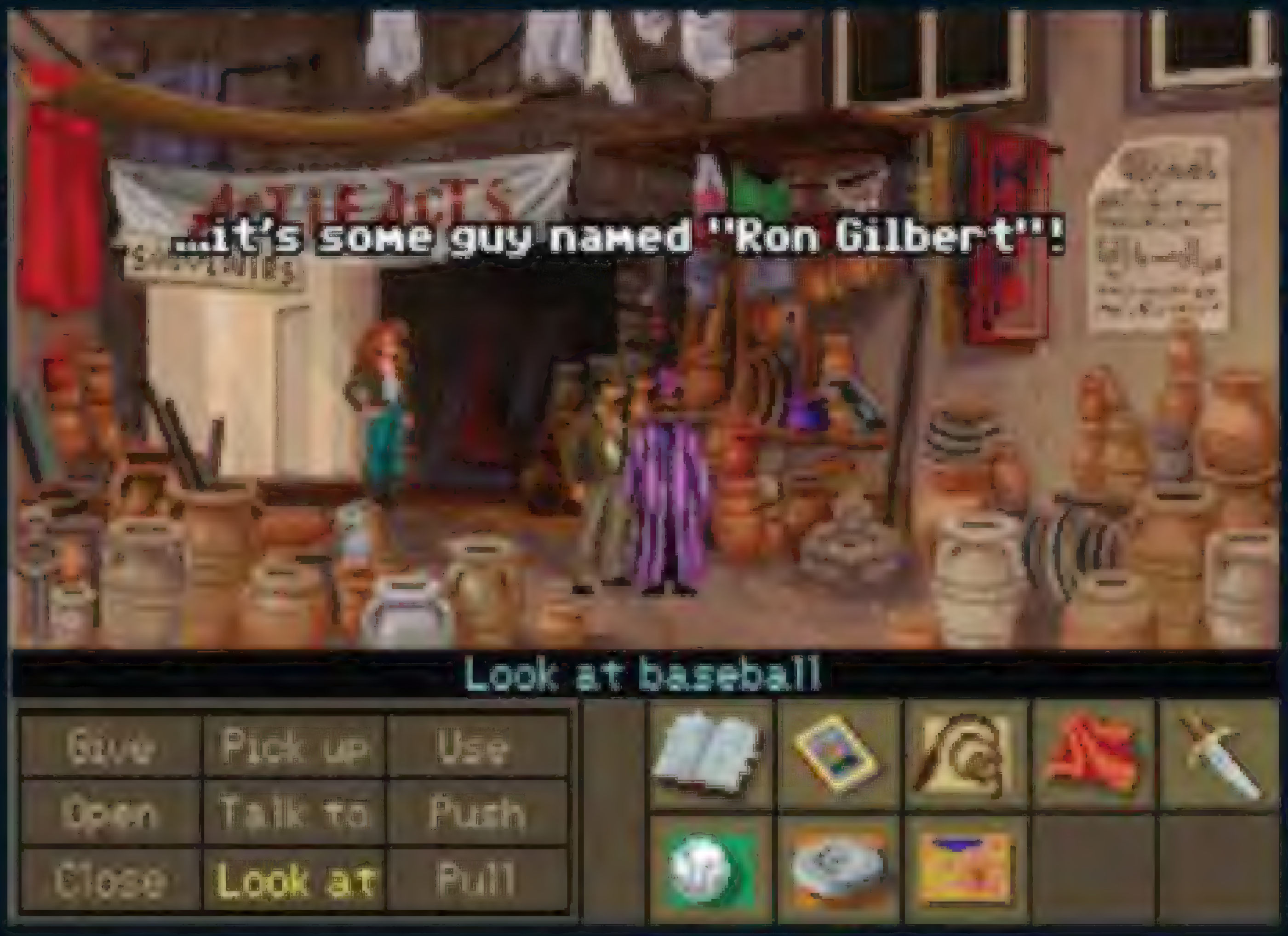
Grim Fandango would be one of LucasArts' last original point-and-click adventures, after which Tim moved on, founding Double Fine Productions and unleashing games like the splendid *Psychonauts* and *Brütal Legend* on the world. But the recent success of the *Double Fine Adventure* Kickstarter campaign, which raised a colossal $3.45 million to fund a traditional point-and-click style adventure, has brought the genre back into the spotlight. "I always maintained that the adventure game market did not fall off," he muses, "it just didn't grow as much as other parts of the industry. And that's the thing that Kickstarter does. It allows those people to get together and say 'Hey this might not be the thing that makes the maximum return on investment, but we still want it, so here's a way to pool our money together and make it happen.'"

"*Double Fine Adventure* is very much being made like a point-and-click adventure because it's backed by fans of the genre. When we had the choice of doing things like we did before or coming up with something new, I do feel a lot safer doing things the old way because I know the people that are paying for the game like those old games and they don't mind dialogue trees and cutscenes. That being said there's a lot to evolving adventure games, there's a lot of opportunity to getting games to new audiences that have never touched a computer before with devices like the iPad."

Ron's upcoming project for Double Fine, a beautifully illustrated platform romp, *The Cave*, also harks back to his SCUMM adventure designing roots. "The Cave is obviously very influenced by classic adventure games," he reveals, "with the puzzle-solving and humour. I think it's very much lifting a lot from those old games – we don't do dialogue trees but there's this strange, slightly nonsensical world that it has that I like a lot."

Long-time adventure fans may also spot a reference in the game's opening sequence that takes them back to the early days of Lucas adventures. Says Ron, "the number one reason that I wanted that beginning scene in *The Cave* to be that way is that is because it's the character selection screen from *Maniac Mansion*, and people do see that… that was on purpose."

» [PC] The talkie version of *Indiana Jones And The Fate Of Atlantis* shows the quality of Hal Barwood's script.



...it's some guy named "Ron Gilbert"!

Look at baseball

"I was always most excited and most proud of the most recent game we were working on," reflects Aric. "With each new game, we tried to push the boundaries and do things that had never been done before. I've always thought that if you aren't moving the art or the technology forward, why bother? There were some favourite moments, like the opening animation in *Day Of The Tentacle*, or the humour in *Sam & Max*, the music in *Full Throttle*, or being able to walk all three kids simultaneously in *Maniac Mansion*. Each accomplishment was very different, but like your children, they each hold a special place in your heart."

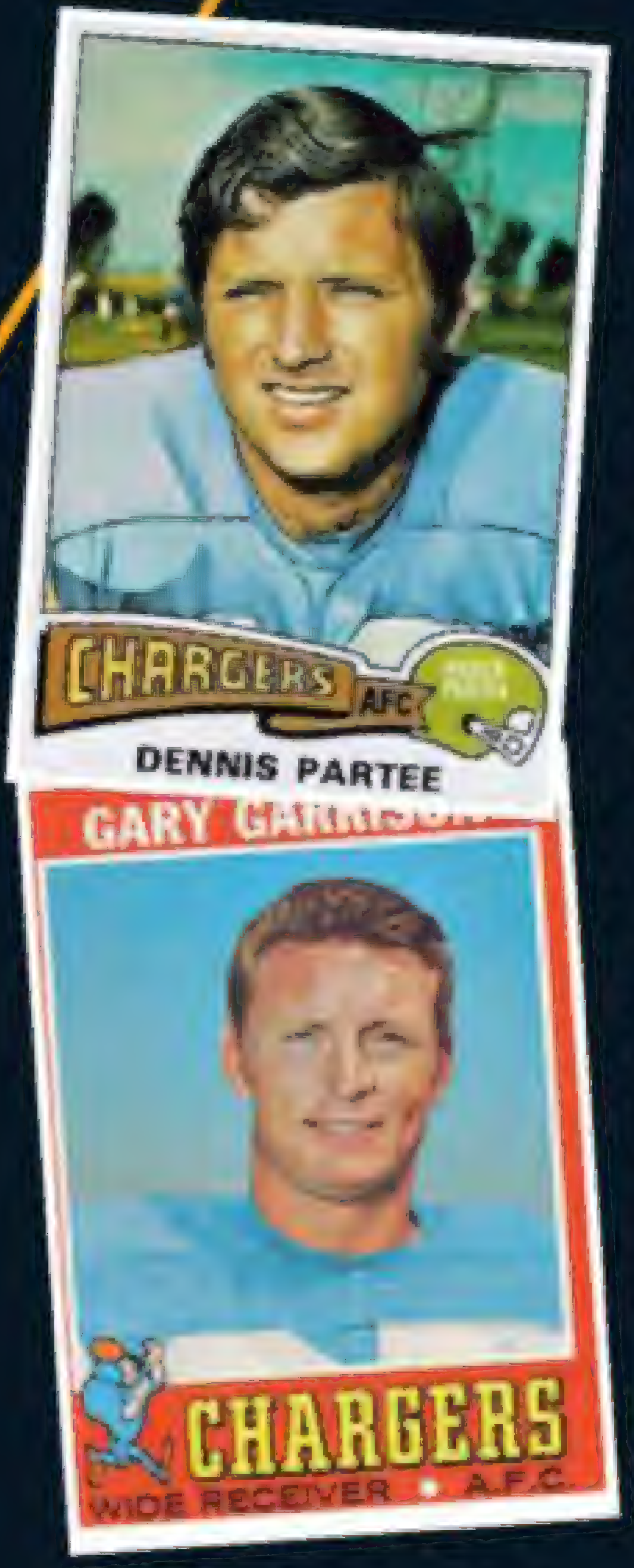
scummVM

ScummVM is a freeware interpreter, originally designed specifically to run the vintage LucasArts SCUMM adventures on modern platforms. The interpreter has been expanded to be compatible with many other games, such as *Flight Of The Amazon Queen*, *Beneath A Steel Sky*, and many of Sierra's graphic adventures including the *King's Quest* and *Leisure Suit Larry* series. While Ron Gilbert has endorsed ScummVM as an important tool in keeping classic adventures games alive, LucasArts has always taken a more negative stance on the project. However it remains an invaluable tool for experiencing the SCUMM adventures on today's PCs as well as a myriad of other devices.

THE MAKING OF

STAR CASTLE

From the original pioneers of vector gaming in the arcades came a truly unique and fast-paced space shooter that combined elements of Asteroids and Breakout. We join creators Tim Skelly and Scott Boden to take you behind Star Castle's creation



» Dennis Partee's (top) and Gary Garrison's (bottom) 1975 and 1971 (respectively) American Football trading cards: the co-founders of Cinematronix in 1976.

The story of *Star Castle* begins in the complicated history of the complicated company that created it, Cinematronics. To many readers , the name will be far less familiar than other coin-op companies like Atari, Midway, Williams, and Stern. Not surprising, considering that Cinematronics specialised in vector display-driven arcade machines, a unique format influenced by the same display technology previously only available on mainframe and mini-computers – the stomping grounds of the now legendary *Spacewar!* computer game. The technology died out in the arcades after the mid-Eighties, but Cinematronics still remains a legend to fans of vector display games.

Cinematronics itself was founded on 1 April 1975 in San Diego, California by two soon-to-be-retired American pro-football players, Gary Garrison and Dennis Partee. Bringing in financial partner Jim Pierce, they were looking to be getting into the growing video arcade game business, which seemed to have new companies every other day.

Unfortunately, their entry was a string of *Pong*-style clone games at a time when the industry was moving to much more complicated gameplay with more detailed graphics, such as Atari/Kee's *Tank*, *Indy 800* and *Steeplechase,* as well as Taito/Midway's *Gun Fight.*

Losing money and ready to go out of business, the company was saved by an MIT grad named Larry Rosenthal. Following in the grand tradition of Bushnell and Dabney (*Computer Space*) and Pitts and Tuck (*Galaxy Game*), Rosenthal had been looking at a way to bring the game *Spacewar!* to the arcade. Bushnell and Dabney had done it simply by not actually trying, releasing their raster display-driven game that was simply influenced by *Spacewar!* Pitts and Tuck did it by literally putting an expensive mini-computer (the DEC PDP-11) and its vector display-driven terminal stations in cabinets. A mini-computer with a coin slot.

Rosenthal had gone a route similar to Pitts and Tuck, using hardware that could literally play the real *Spacewar!* game. Only in his cased he used TTL (Transistor-Transistor Logic, a digital logic technology used in all pre-microprocessor-based arcade games) based circuitry to recreate the instruction set of the DEC PDP-8 mini-computer and run the PDP-8 version of *Spacewar!*, which he had licenced from MIT. "The game board was a TTL implementation of a PDP 8. It used 74ls181 alu's as the core, and some lookup proms for

FLIPPER BALL
another
Cinematronics
MONEY MACHINE
BALL
PLAYER
GAMES
Cinematronics, Inc.

» *Flipper,* one of several early *Pong*-style games that were released far after the genre's heyday and almost drove Cinematronics into bankruptcy.

» Larry Rosenthal (left) created the Vectorbeam hardware used at Cinematronics, later creating his own company also called Vectorbeam. Dan Sunday, while employed at Vectorbeam made the demo that inspired Tim Skelly to come up with *Space Duel.*

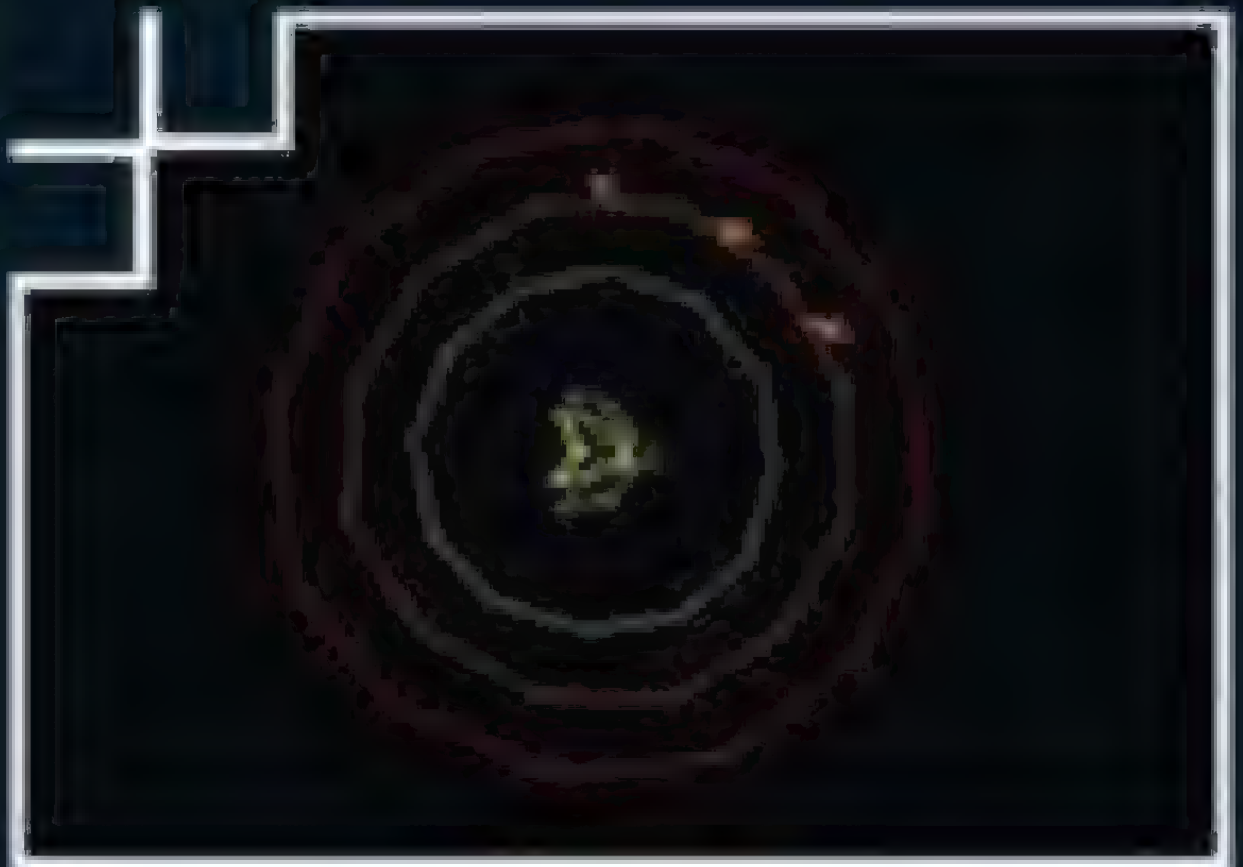
instruction decoding. The D/A converters for the vector monitors were right off the 12 bit data bus," says *Star Castle* programmer Scott Boden. Calling the technology Vectorbeam, he talked Cinematronics into an unheard of 50/50 split (which was exactly why he was turned down by every other non-desperate company he talked to). They released the game in 1977 as *Space Wars*, and entered arcade history with the first vector display coin-op. About 30,000 coin-ops were built and it was one of the top earning arcade games for operators over the next several years.

"The collaboration was a huge success, but even though they were very happy with their share of the revenues from *Space Wars*, Pierce and Stroud were not so happy with their arrangement with Larry. 50 per cent was (and continues to be) an outrageous share to go to a game developer. Also, in addition to his cut of the profits, Larry retained the application patents to his board, which he licenced to Cinematronics. This meant that he received additional cash for every game, *Space War* or otherwise, that Cinematronics manufactured using his technology," said Star Castle creator Tim Skelly in a 1999 Usenet post.

Tim Skelly, now a legend in the videogame industry, showed up during Autumn 1978 as a young programmer (with only a year of experience) ready to interview for a job. Meeting with Rosenthal, he thought the interview went badly and headed back to home in Kansas City. "Larry seemed to have little interest in my qualifications or anything else about me for that matter." Soon after though, Cinematronics co-owner Jim Pierce told him he had the job, and Tim immediately packed up and took the four-day drive to his new job. Only when he got there, Larry and other key players from Cinematronics were gone! Owning the patent and having the clause that he could leave Cinematronics at any time, Larry had felt he could make even more money by doing his own manufacturing as well, and had left to form his new company, Vectorbeam. Cinematronics suddenly had the lone programmer Tim for their future. The fact that all that was left was Larry's homebrew development system that had to be programmed by hex, and the entire future of the company was now resting on his shoulders, scared the hell out of Tim.

But he rose to the occasion, dug in, and taught himself how to program on the intimidating spartan dev system that had been until that time used to run just one game. First came *Starhawk*, then *Sundance* and what is considered the first released fighting game, *Warrior*.

Scott Boden came on board in 1979 at the age of 18 as test tech for coin-op hardware. A self professed high school computer nerd, he was always tinkering with electronics. "I made a ping-pong game out of discrete components



IN THE KNOW

» PUBLISHER: CINEMATRONICS

» DEVELOPER: IN-HOUSE

» RELEASED: 1980

» PLATFORM: ARCADE, VECTREX

» GENRE: SHOOT-'EM-UP

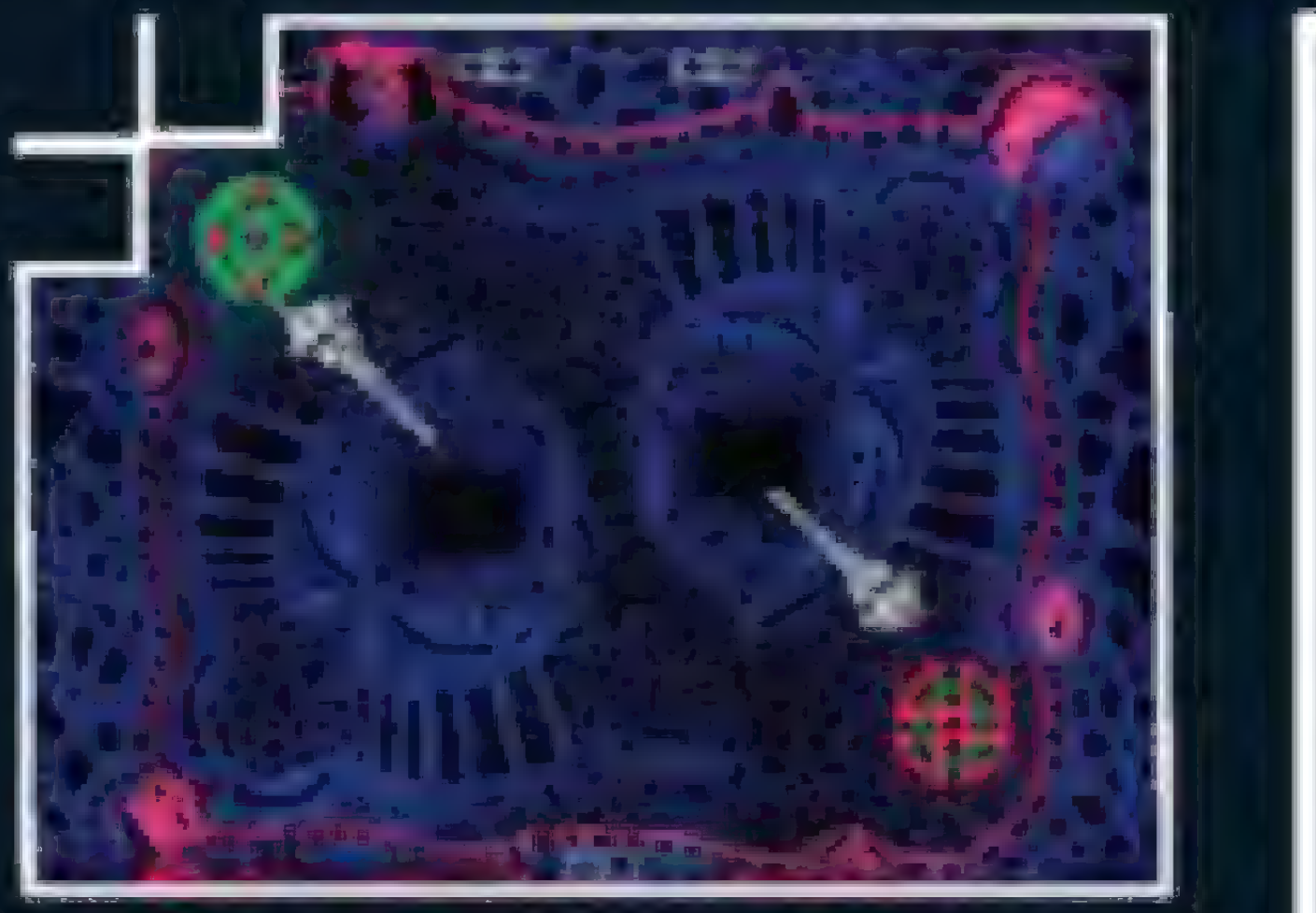
> 50 per cent was and continues to be an outrageous share to go to a game developer
>
> TIM SKELLY, CREATOR

» Jim Pierce was Cinamatronics' financial partner. He was hired by Gary Garrison and Dennis Partee.

Star Castle: The Vectrex Factor

Licenced from Cinematronics and released in 1983, it had been programmed by William Hawkins, then a co-op employee at Western Technologies/Smith Engineering (the creators of the Vectrex) while a student at Georgia Tech. What this conversion has over many other popular games on other consoles at the time is that it's an almost exact duplicate of the coin-op version. Save for the smaller screen and related smaller vector resolution, to most players the look and gameplay are identical. The Vectrex version even takes advantage of the system's ability to use overlays to provide coloured ares on the screen, just like the arcade version does. Providing a great arcade experience in the home, this version of the game may be the only chance most people have to enjoy this game as it was meant to be played: on a crisp vector display. The coin-op is simply all too rare to find.

THE MAKING OF

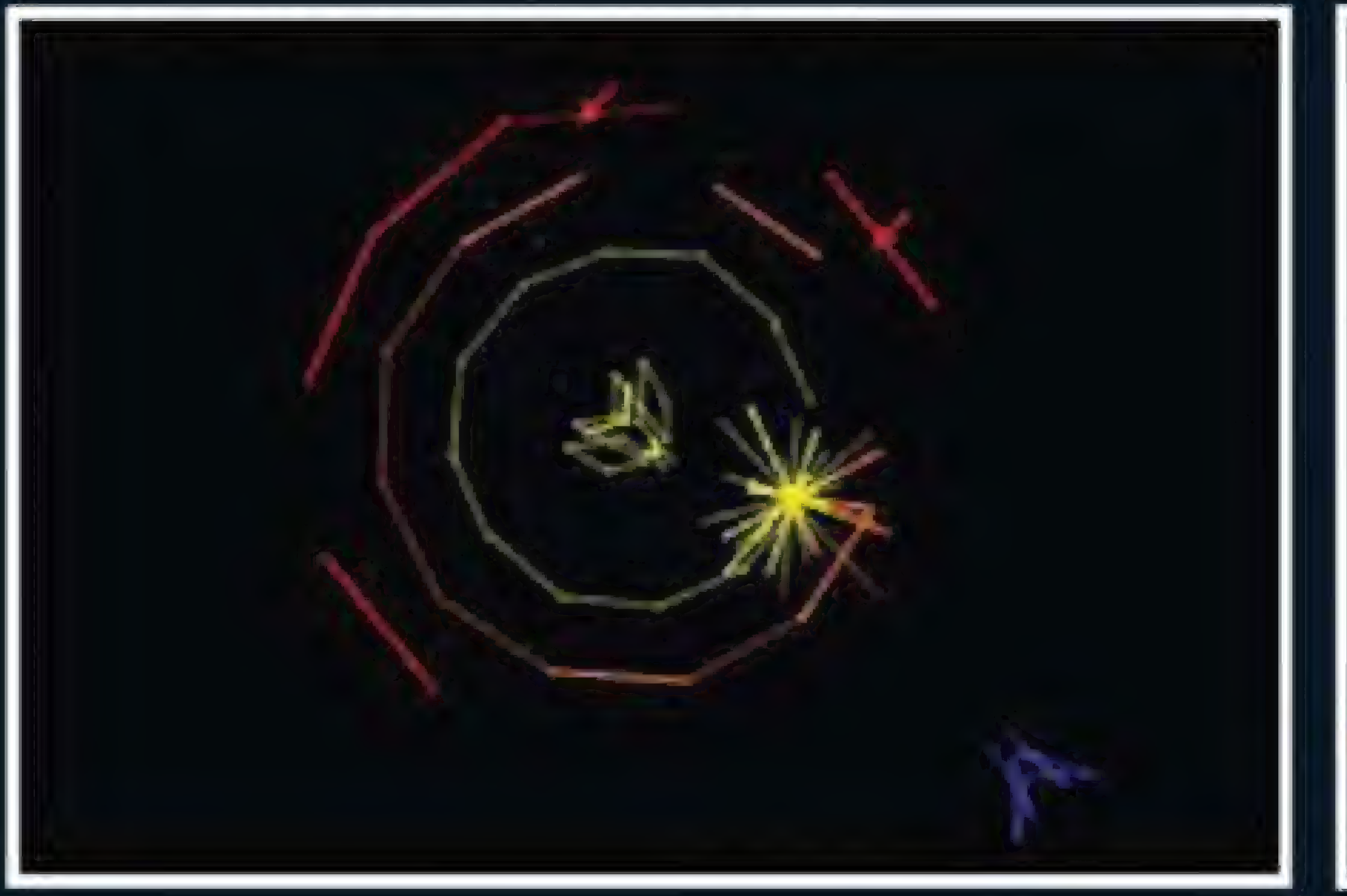


DEVELOPER HIGHLIGHTS

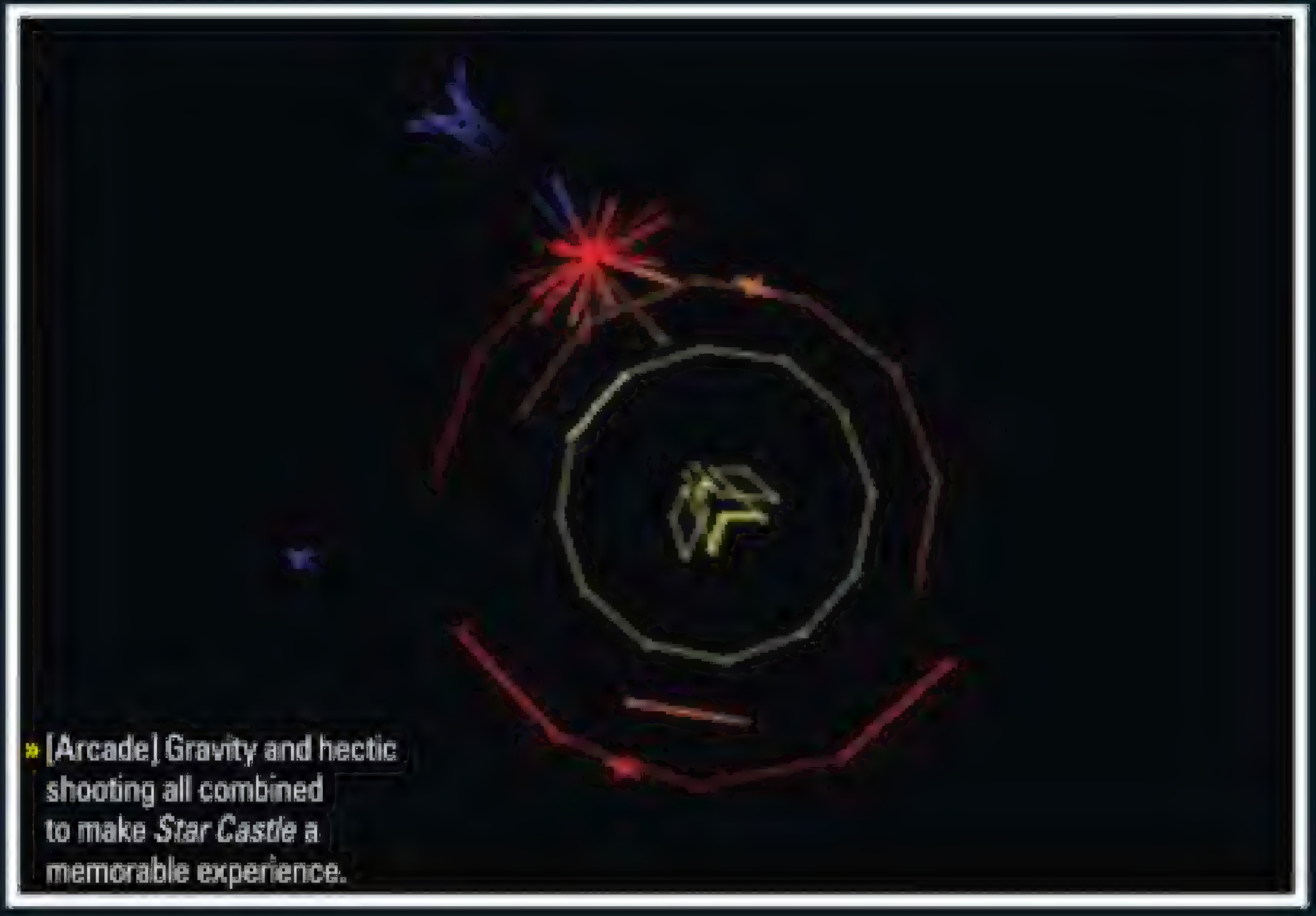
STARHAWK
SYSTEM: ARCADE, VECTREX
YEAR: 1977

WARRIOR (PICTURED)
SYSTEM: ARCADE
YEAR: 1979

ARMOR ATTACK
SYSTEM: ARCADE, VECTREX
YEAR: 1980



» [Arcade] That mothership spits out a huge missile, so fly carefully.



» [Arcade] Gravity and hectic shooting all combined to make *Star Castle* a memorable experience.

after school while watching television at home, without schematics. I also designed various electronic add in cards for heath computer, such as a Z80A processor card to replace the 8080A card in that system.”

Originally fixing broken games (typically *Space Wars*, *Starhawk*, etc), the biggest perk to Scott seemed to be that he was able to play as many free games as he wanted. Wanting to get more experience, however, he soon talked his way into engineering and then into programming. “I already knew how to design and fabricate electronic prototypes. While in engineering I spent a lot of time talking with Tim, and told him I already knew the hardware inside and out, and that I had already done a lot of programming in assembly language. So he got me transferred to the game design department.”

Scott’s first game was *Clown Skeet*, done to learn the development system which by then had evolved into a DEC PDP-11 with editor/assembler and communications software to upload the game code to the board. Besides needing to learn how to do 3D image transformations with a very limited instruction set. Code debugging, Scott discovered that learning to program vector display hardware was far different than raster; it had its own sets of ins and outs.

“With the vector system used, the game board provided a X and Y position, and a beam on/off/intensity signal. The X and Y signals are two voltages generated by two 12-bit DAC (digital to analog converters) giving 4096 possible positions. To draw a vector, the beam (in the off position) is moved to the starting point of the line, the beam is turned on, and the destination point is then entered into the DAC. The slew rate of the yokes in the vector monitor are only so fast, so it takes time to draw a line. Longer lines take longer time. Moving the beam, even in the off position, takes more time for more distance. Sometimes the graphics were cpu bound, with calculating 3D rotations requiring too much math. And sometimes easy math artwork was limited by taking too much time for the beam to move. I remember moving the beam, doing some math, and hopefully when the calculations were done the beam was ready, wasting as little time as possible.”

> There was a circuit breaker in case of extreme failure, but the off switch was quicker
>
> SCOTT BODEN, PROGRAMMER

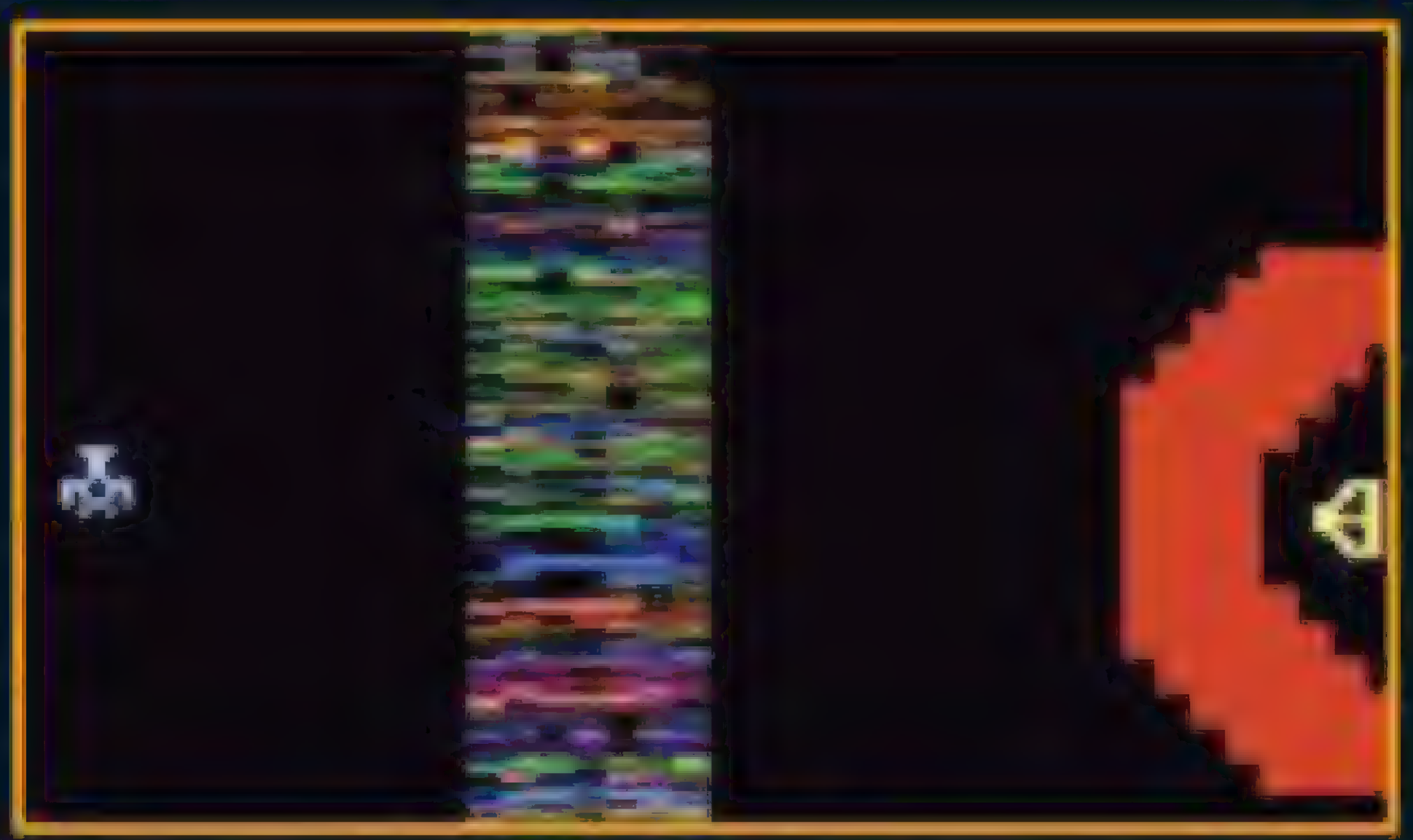
Luckily Tim was there to show him the ropes, share the source code for previous games, and when ready… give Scott his first real game: *Star Castle*. The idea for *Star Castle* created a scenario similar in some ways to Nolan Bushnell seeing the Magnavox Odyssey’s *Tennis* game and giving it to Al Alcorn to expand into what became *Pong*. Shortly after Scott had started at Cinematronics, Larry and his company Vectorbeam ran into hard times of their own and wound up selling out to Cinematronics. “I was tasked with evaluating Vectorbeam’s software assets. I flew up to Oakland with some of the Cinematronics techs. This was when I first met Dan Sunday, saw the game that was to become *Tailgunner*, and the demo that inspired *Star Castle*,” recalled Tim.

Simple in appearance, it consisted of a ship from *Space War* surrounded by rotating rings filled with blocks. Chased by a flock of “snowflakes,” when they collided with the ship’s rotating shield, a brick disappeared. When they were all gone, the ship was defenceless and game over. Not very fun on it’s own, Tim evolved the concept in to the project he gave Scott. As Tim recalled in the same Usenet post, “Soon, I came up with a way to make Dan and Larry’s shield of rings work. I put the enemy inside of the rings and anchored it to the centre. The player would have a free moving ship, and the player’s goal was to shoot through the rings and hit the enemy.

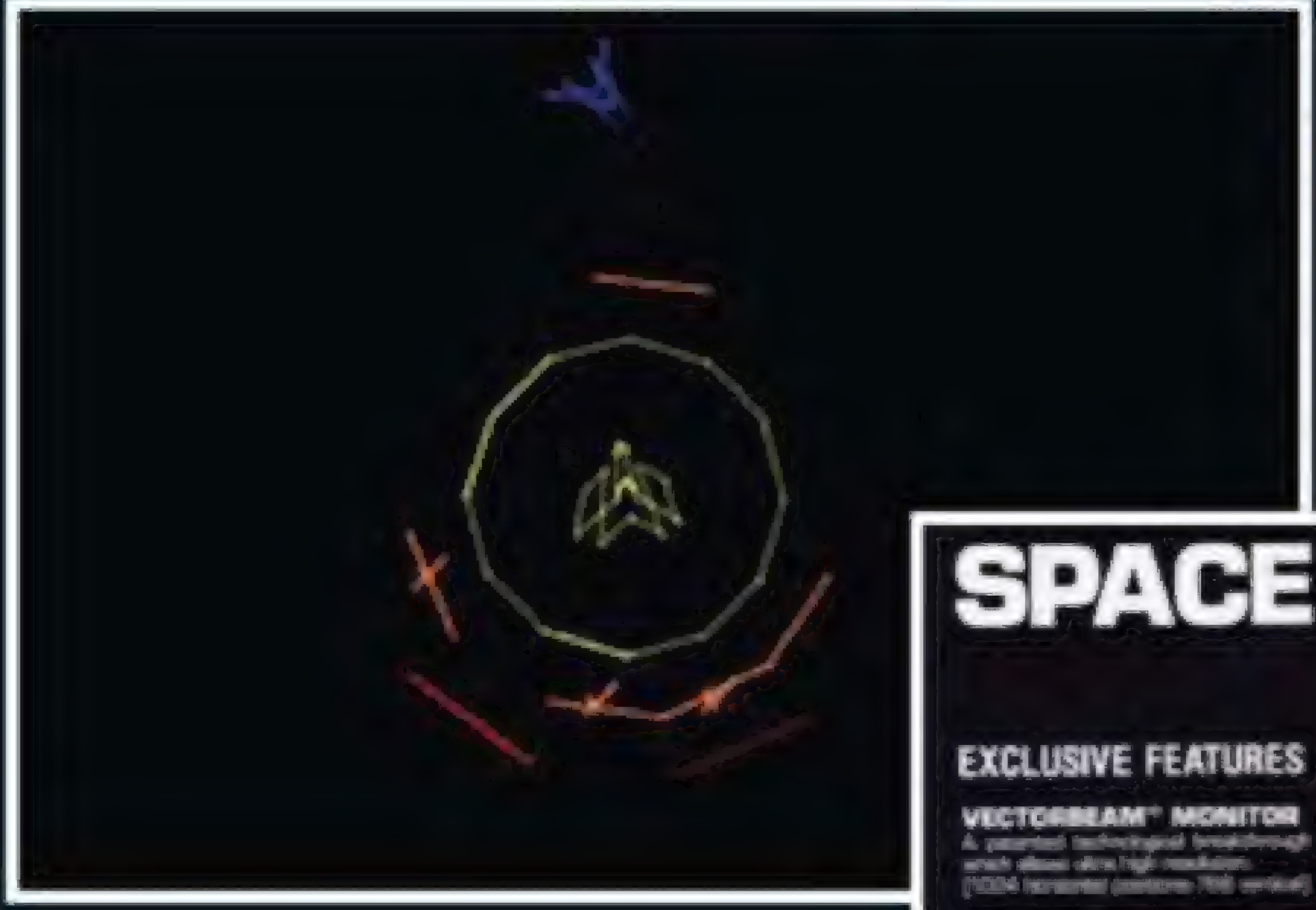
“This meant that by shooting out the shield, the player was shooting away the one thing that was protecting them from that nasty gun in the centre. I cut the shield segments down to lines instead of blocks (fewer unnecessary lines) and added more rings. Besides the central cannon, danger to the player came from

» *Star Castle* programmer Scott Boden at the age of 16, about two years before he started at Cinematronics, where he worked his way up from a technician to a programmer.

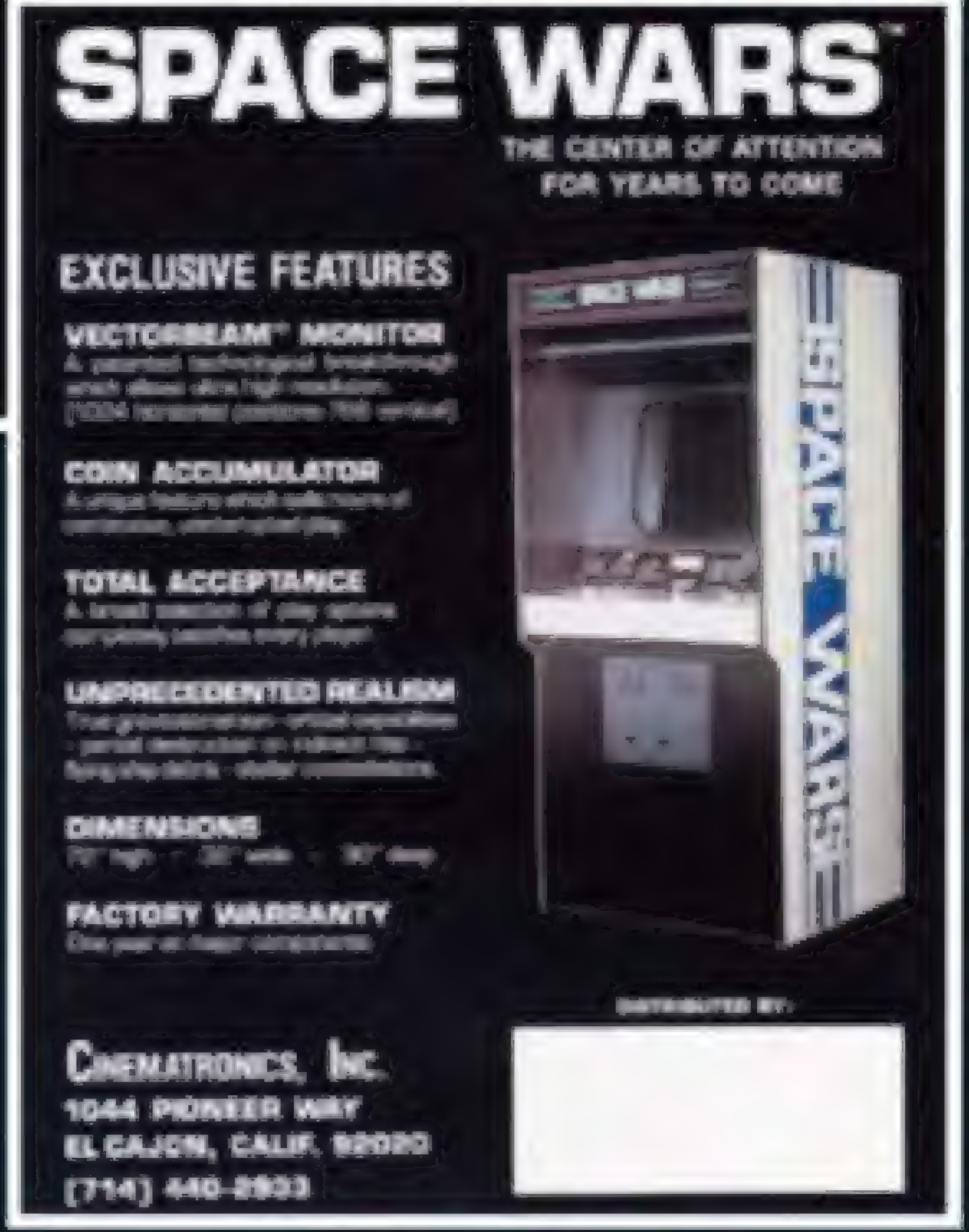
Yars' Revenge



Star Castle actually gave rise to a very well known cult classic game on the Atari 2600 platform, *Yars’ Revenge*. Created by Howard Scott Warshaw of *Raiders of the Lost Ark* and *E.T.* fame, Howard’s first game at Atari was supposed to be a licenced port of *Star Castle*. Realising he simply couldn’t do a port in the limited amount of storage space the programmers at Atari were given at the time (“It would suck,” Howard said), the game’s elements were morphed in to *Yars’*. The enemy ship became the evil Quotile, the rotating shield a static dome, and the hero a bug called a Yar.



» [Arcade] *Space Wars*, created by Larry Rosenthal, saved Cinematronics. Running on a custom hardware mimicking the instruction set of a DEC mini-computer, it ran a licenced version of *Spacewar!* that was literally the same version that ran on DEC mini-computers.



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"space mines" that originated in the centre and then hopped outwards from ring to ring, giving the player some time to anticipate their approach." The new idea was to create a frantic pace yet consistent tension.

Scott then set out to program Tim's vision. "I worked out a general outline with Tim, and it was up to me to implement and tweak. There were other things we would have liked to do nicer, but were memory and bandwidth limited. Developing the game was done incrementally. For example: get a ship displayed on the screen... make it rotate... animate jets out the back... make it move... make it wrap around the screen... detect other objects, etc. Every time you added a tiny bit of code you compiled and tried to run it. There were no debug tools. No single step. It was full speed or nothing. So the less you added at one time, it was easier to isolate the problem, since it was most likely something you just added. Also, if you crashed the processor while the display's beam was on, you could blow out the monitor. There was a circuit breaker in case of severe failure, but the off switch was quicker. Most development was done late at night, usually till dawn. Then sleep and repeat. We also played a lot of music after hours. Tim had an extensive music collection – his old girlfriend was a radio DJ."

In all, the code for *Star Castle* took up 8k of storage. Released in late 1980, it enjoyed good earnings and popularity in the arcades. Receiving exactly one official home port (for GCE/Milton Bradley's Vectrex), and a licenced tabletop version by Tiger, it drifted in to relative pop culture obscurity, though it certainly remains a favourite among vector arcade game aficionados!

Special thanks to Keith Smith.

STAR CASTLE
STAR CASTLE
9050

STAR CASTLE

Star Castle Cameos

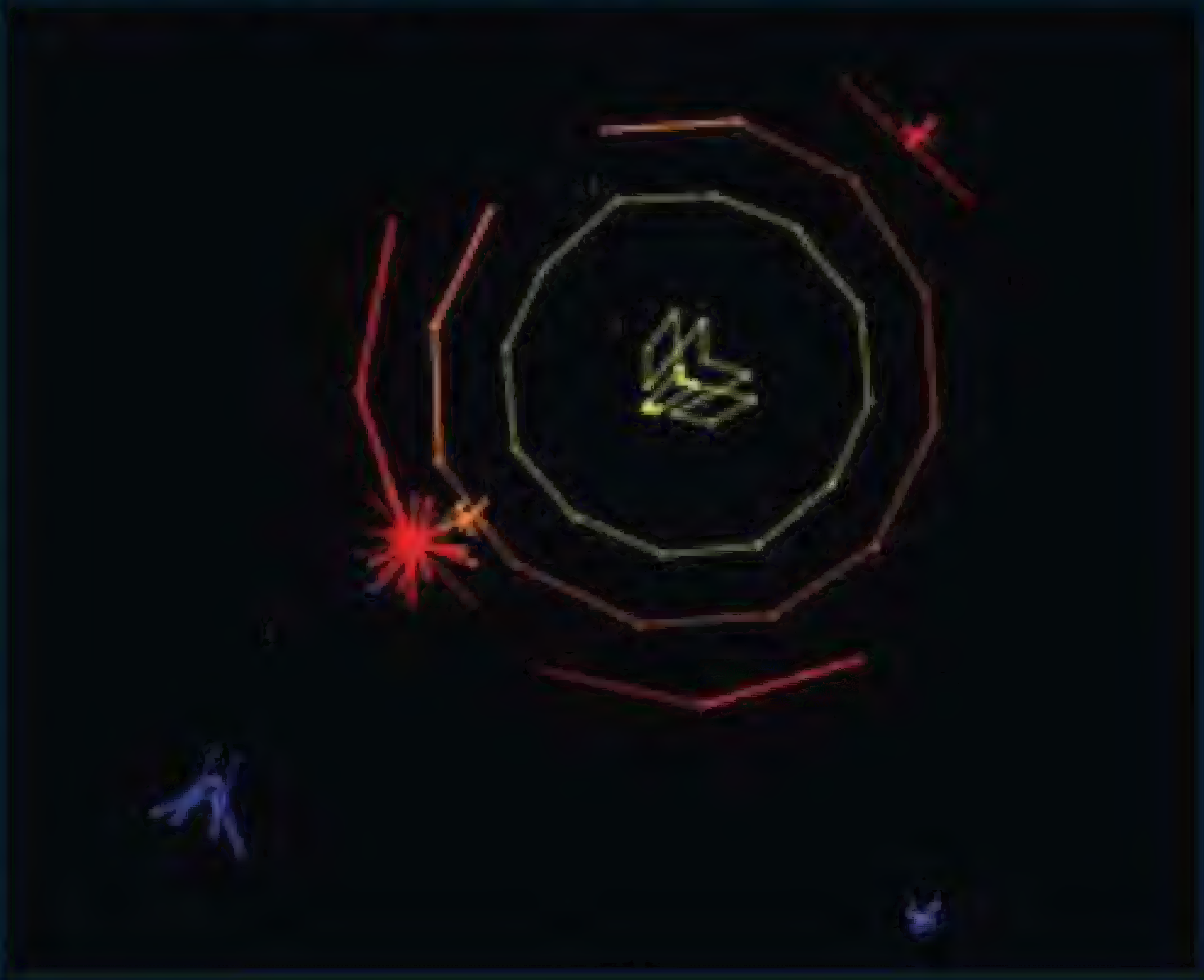
Star Castle's first cameo was in the now legendary 1982 movie *Fast Times At Ridgemont High*. Serenaded by the Go-Go's *We Got the Beat*, a full screen close-up is shown for all of two seconds before switching to the even more obscure *Lunar Rescue* (Taito 1979).

In 1983, *Star Castle* had another cameo in the easily forgettable videogame movie *Joysticks*. Well, forgettable by everyone except videogame fans! *Star Castle* is sandwiched in between a virtual cornucopia of obscure coin-op titles.

Who ya gonna call? *Star Castle*! Well maybe not, but *Star Castle* has the privilege of being one of three coin-ops chosen by Dr. Peter Venkman, Dr. Raymond Stanz, and Dr. Egon Spengler to adorn their firehouse headquarters in the 1984 film, *Ghostbusters*.

Someone must have had a sense of humour and some inside knowledge when they had *Star Castle* make a cameo appearances in Stephen King's 1986 film *Maximum Overdrive*. Vector monitors are notorious for blowing out, and in this case the game electrocutes an unsuspecting player.

An unexpected tribute in a modern game, *Star Castle* is given a tribute in the popular game *Angry Birds Space*. Hidden in the game, it can be accessed through hitting a special target on an asteroid with a castle... taking you to a "castle" in the shape of a star.



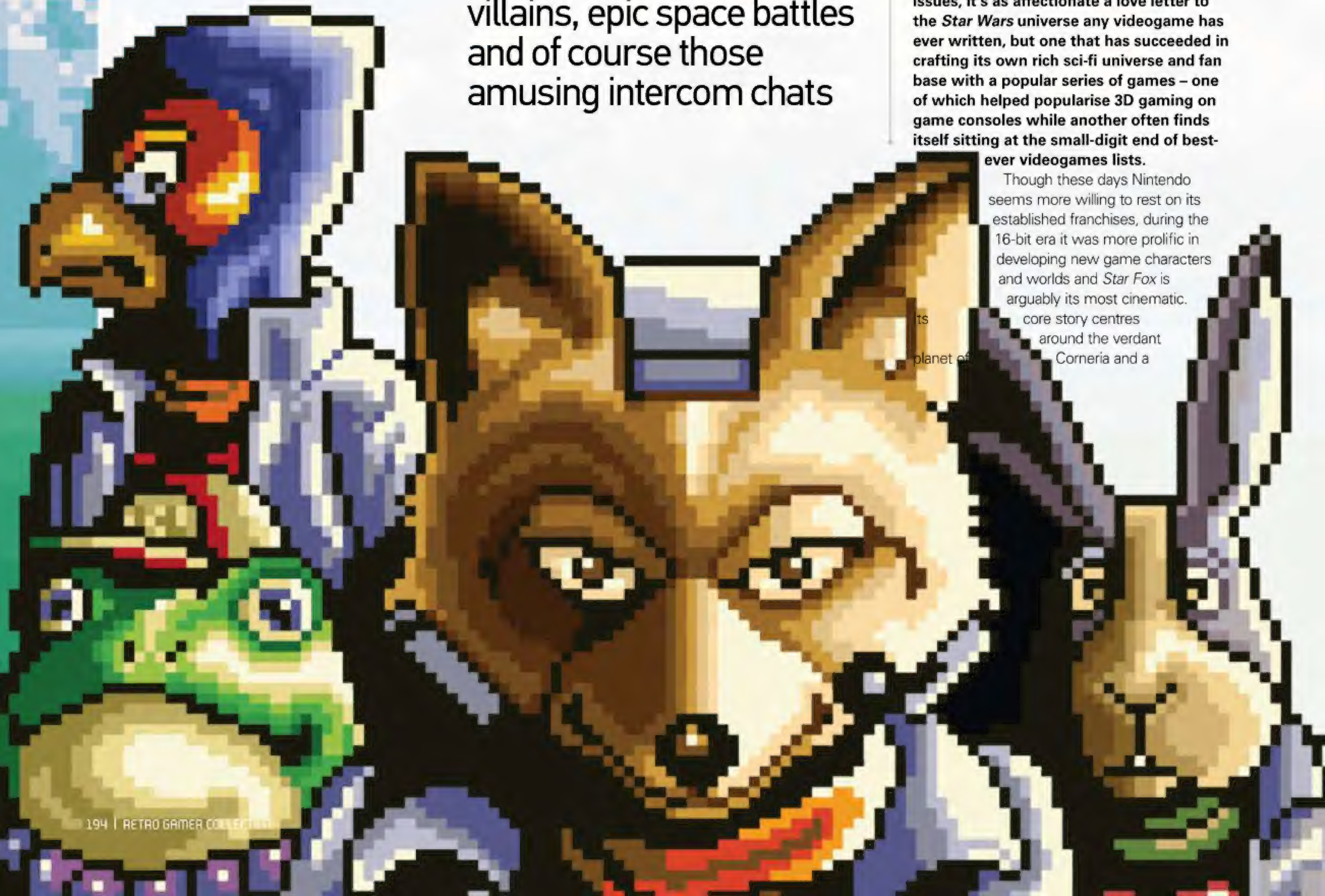
» Being a vector game, arcade machines were prone to breaking down. Working machines are now extremely rare.

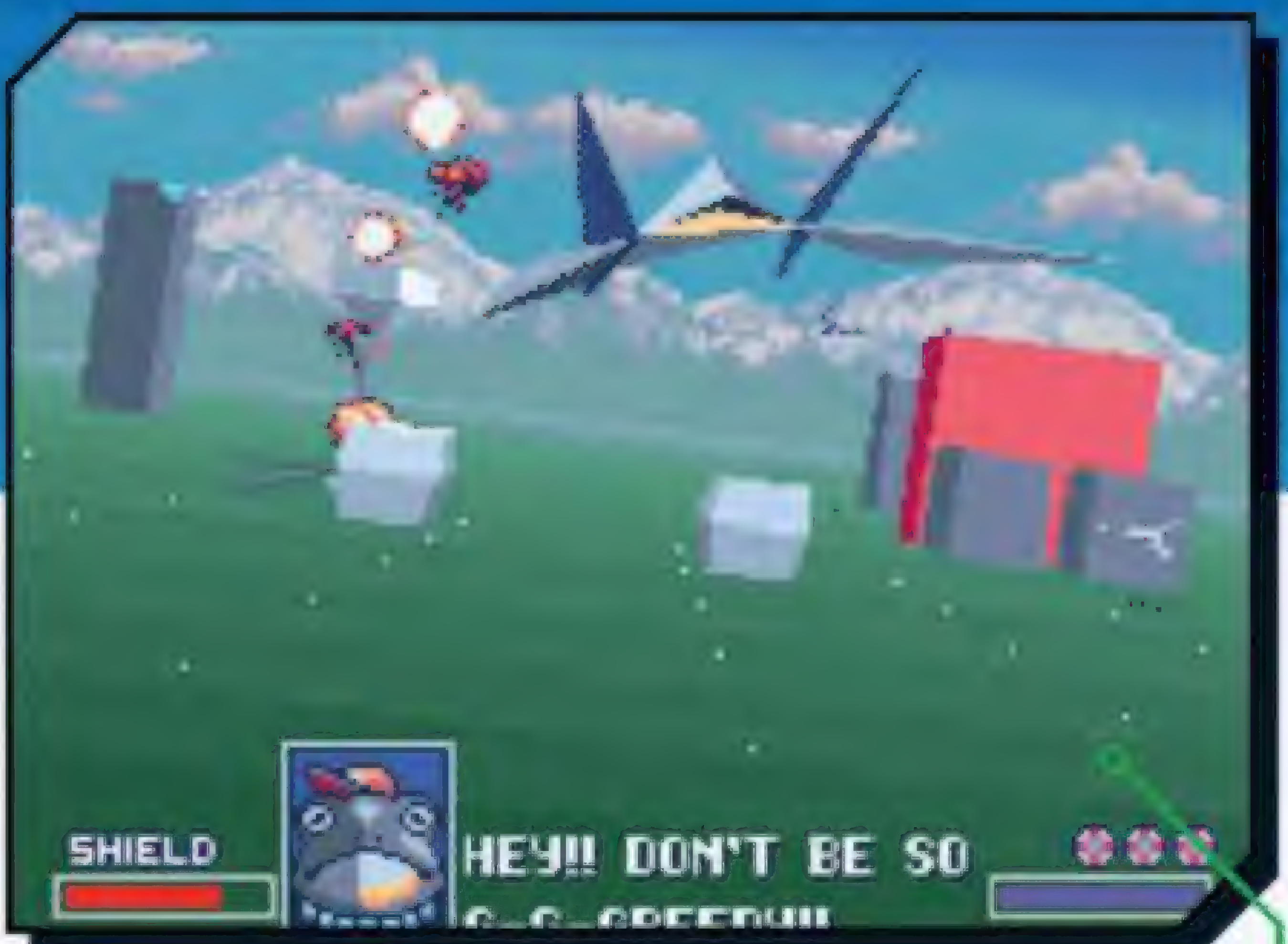
The History of STARFOX

We take a look back at the history of the legendary Nintendo franchise, remembering its heroes, villains, epic space battles and of course those amusing intercom chats

S*tar Fox* feels like Nintendo's take on *Star Wars*. The similarities between George Lucas's universe and Nintendo's space shooter are obvious for all sci-fi buffs to see. From *Star Fox*'s (or *StarWing* if you're a UK gamer) title and X-Wing sounding and looking Arwing craft, to Fox McCloud's father issues, it's as affectionate a love letter to the *Star Wars* universe any videogame has ever written, but one that has succeeded in crafting its own rich sci-fi universe and fan base with a popular series of games – one of which helped popularise 3D gaming on game consoles while another often finds itself sitting at the small-digit end of best-ever videogames lists.

Though these days Nintendo seems more willing to rest on its established franchises, during the 16-bit era it was more prolific in developing new game characters and worlds and *Star Fox* is arguably its most cinematic. ts core story centres around the verdant planet of Corneria and a





» [SNES] One of the things that set *Star Fox* apart from other space shooters was the characters; their amusing confabs over the radio helped enhance its gameplay.

brave band of anthropomorphic mercenary pilots, led by the fearless Fox McCloud and joined by his team-mates Peppy Hare, Falco Lombardi and Slippy Toad, who have sworn to protect it – often from the dastardly monkey maniac Andross and his Venom forces. The *Star Fox* series is unusual in that it has two canon paths: the original Super Nintendo one and the N64 one, which has been expanded with the sequels *Star Fox Adventures*, *Star Fox: Assault* and *Star Fox Command*. The reason for this split remains unclear among its fans, though perhaps part of the answer might lie with the games' development tales.

The original *Star Fox* was an extremely important release for Nintendo, helping the firm to finally break into 3D gaming. Though 3D graphics weren't new to gamers who had grown up playing on home computers, *Star Fox* marked the first time that many console gamers had seen them used in such spectacular fashion. But it wasn't just console gamers that were green to the delights of polygon graphics: Nintendo was pretty inexperienced too.

Nintendo has something of a history of looking to third-party developers for technical assistance – even dating as far back as its first ever mega hit *Donkey Kong*. So the story goes, back in the early Eighties Nintendo turned to Ikegami – a leading Japanese manufacturer of broadcast equipment – to help create the code for its pivotal 1981 coin-op. Once the initial order had been met, Nintendo reputedly cut its dealings with the company, resulting in a legal battle between both parties which was eventually settled out of court.

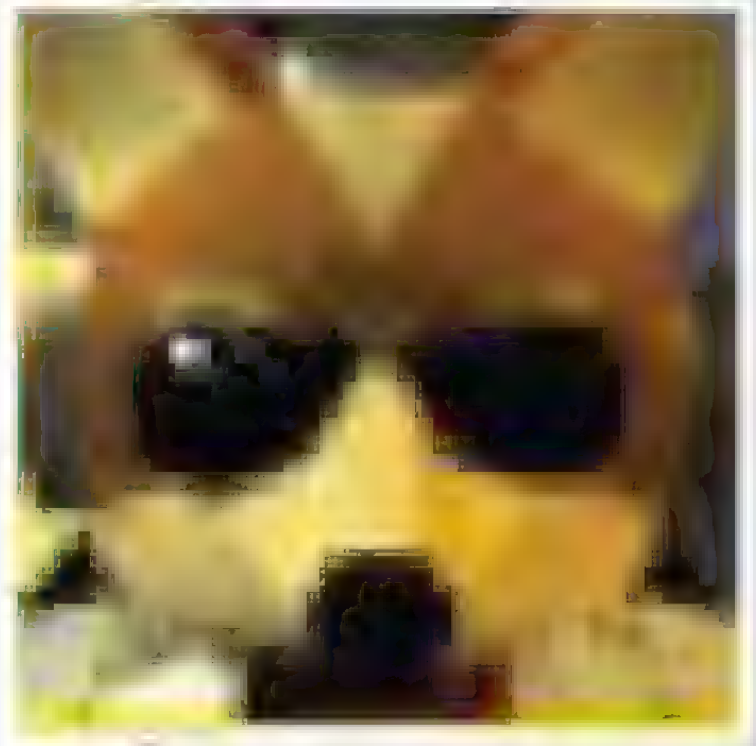
Fast-forward quite a few years and after various attempts to get 3D games off the ground had met with failure, Nintendo finally found itself a mentor in London-based studio Argonaut Games, which had previously enjoyed success with its *Starglider* series of 3D space shooters for home computers. Inspired by its founder Jez San's love of Atari's *Star Wars* coin-op, the *Starglider* games were fast-paced space combat simulators with eye-catching colour wire-frame graphics. However, when home computers began to lose some of their dominance in the UK, Argonaut then began turning its attention to games consoles, curious to see if it could transfer its knowledge of 3D to these new keyboard-less machines from Japan. Setting its sights on the NES initially, the team tested the water by getting a demo version of *Starglider* running on the 8-bit console. Dubbed *NesGlider*, when it showed Nintendo its tech demo, Argonaut was soon given access to the firm's latest state-of-the-art console, the Super NES, to see what it could achieve with the extra power that it afforded. ▶

Meet the teams

THE TWO GENERATIONS OF STAR FOX

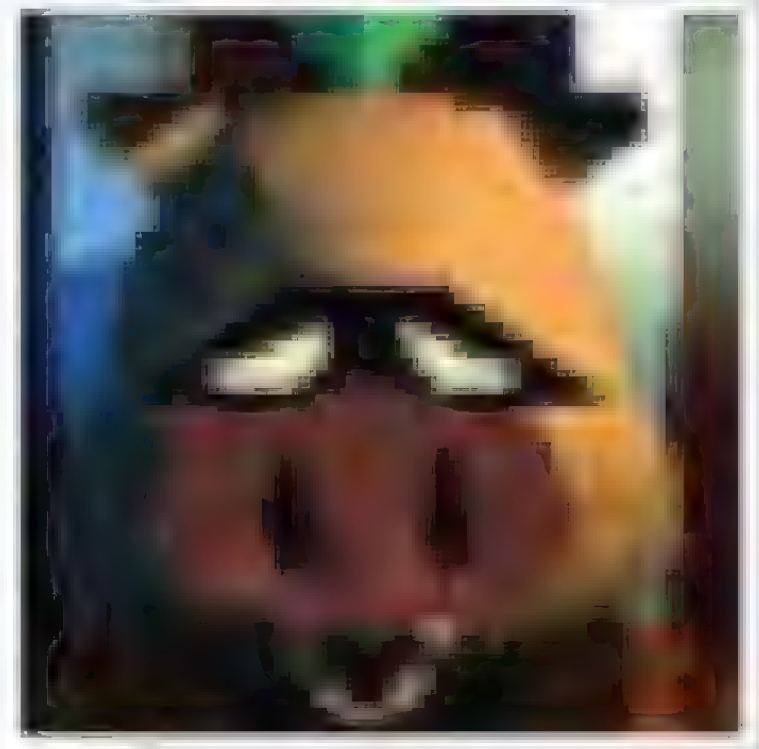
FIRST GENERATION

JAMES MCCLOUD



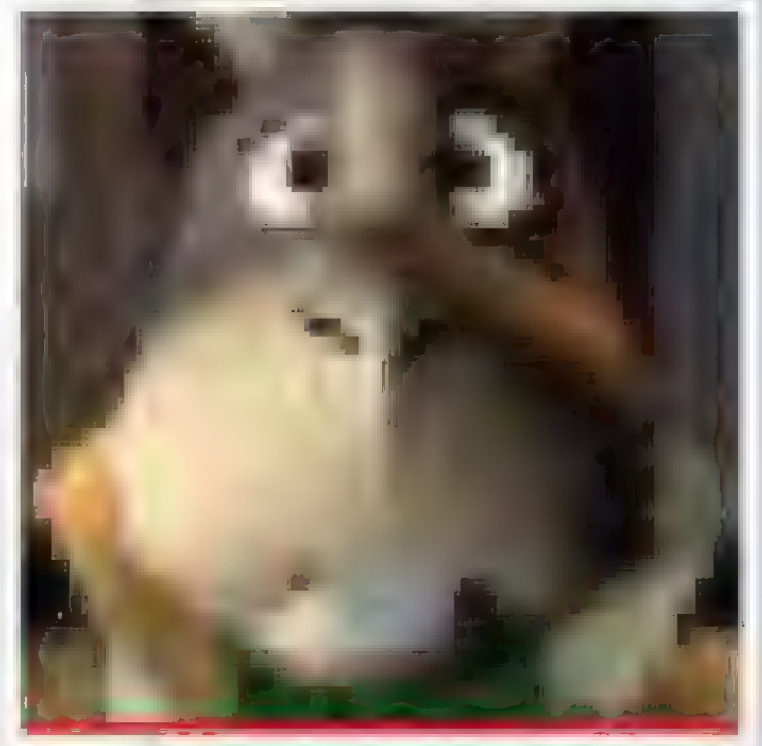
■ James is Fox's father, founder and leader of the original Team Star Fox. His current whereabouts are ambiguous. In *Star Fox 64* it's explained that during a routine scouting mission to Venom, James is betrayed by his team-mate Pigma Dengar and captured and killed by Andross. In the original *Star Fox* he is said to have disappeared inside a black hole – a trap laid by Andross.

PIGMA DENGAR



■ A pirate motivated only by money, Pigma's greed would tempt him to side with Andross and betray his Star Fox team-mate and superior James McCloud. Now part of Star Wolf, Andross's evil version of Star Fox, Pigma has become a recurring enemy throughout the series.

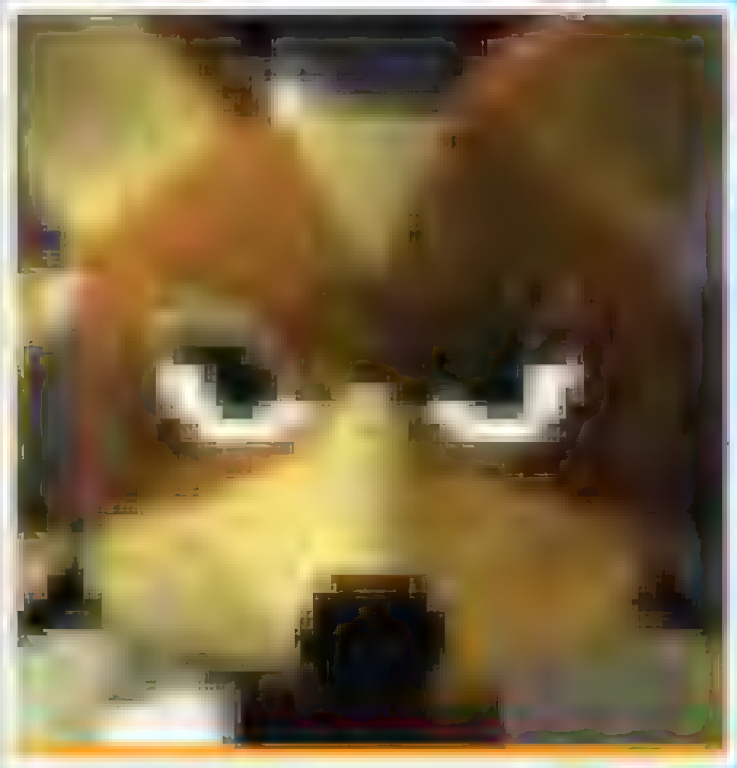
PEPPY HARE



■ A close friend of Fox's father, Peppy Hare was part of the original Team Star Fox and later joined the second. A solid and experienced pilot, Peppy likes to dish out instructions and advice to his team-mates, and especially loves to see them perform barrel rolls. Seriously, he's obsessed.

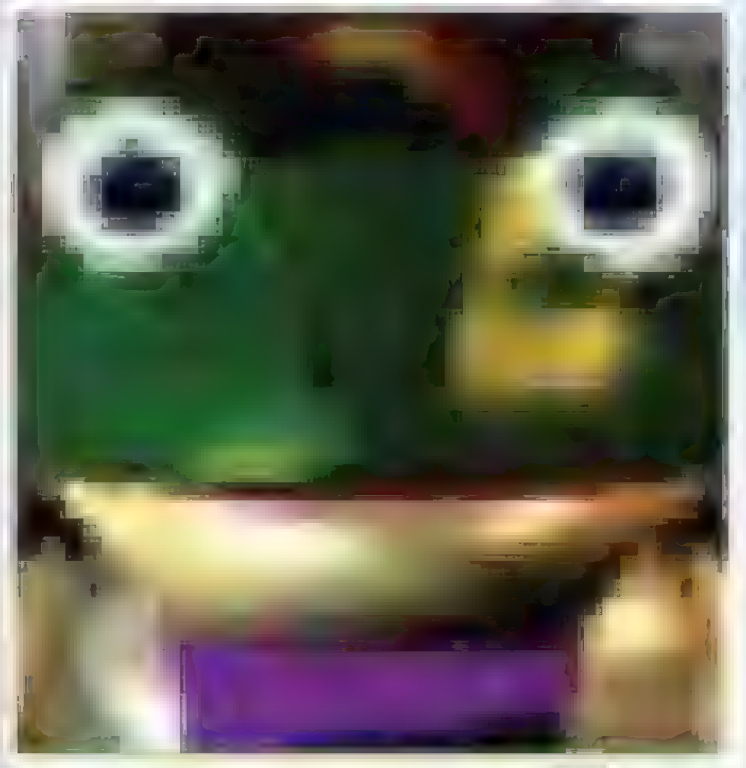
SECOND GENERATION

FOX MCCLOUD



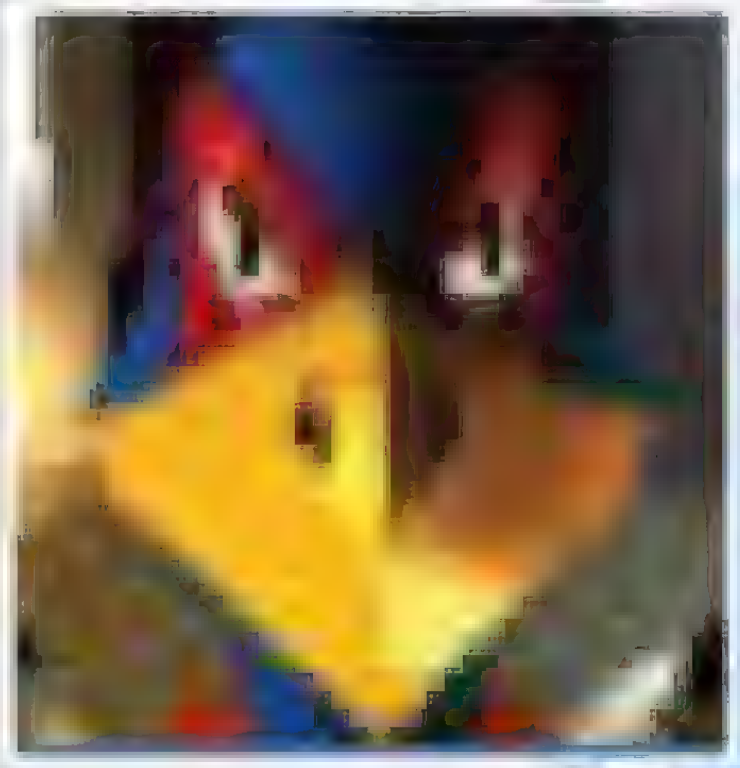
■ The brave and dependable leader of the second Team Star Fox and main star of the series, Fox joined the Cornerian Army to follow in the footsteps of his father James McCloud, who was the founder of the original Team Star Fox. Haunted by his dad's disappearance/death (?), he holds Andross responsible and vows to stop him and protect the planet of Corneria.

SLIPPY TOAD



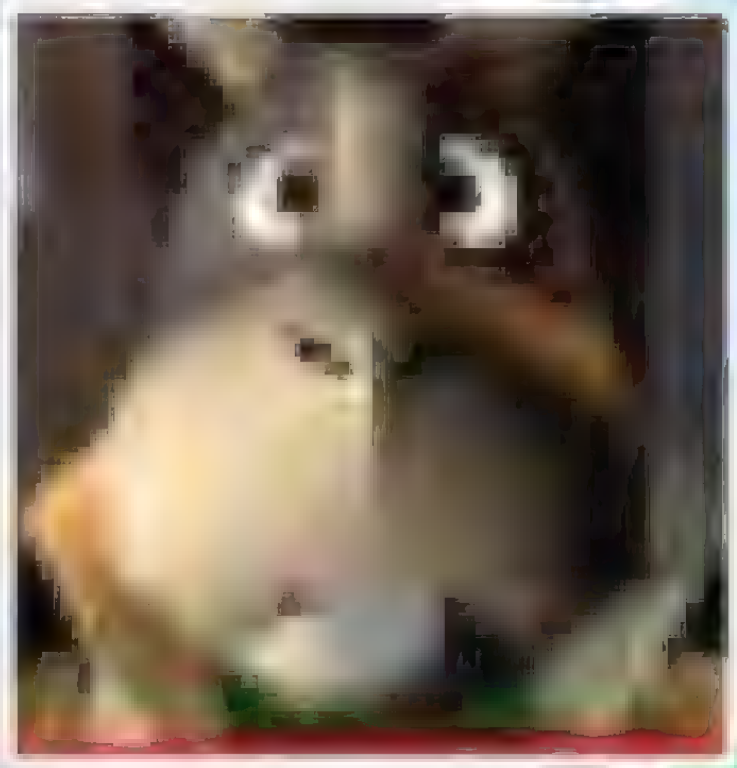
■ An old and close school friend of Fox, Slippy was also a cadet in the Cornerian Army. Like his father, Beltino Toad, Slippy is the inventor and brains of the team. The weakest and least competent pilot, though, he often finds himself relying on Fox and the team to come to his rescue.

FALCO LOMBARDI



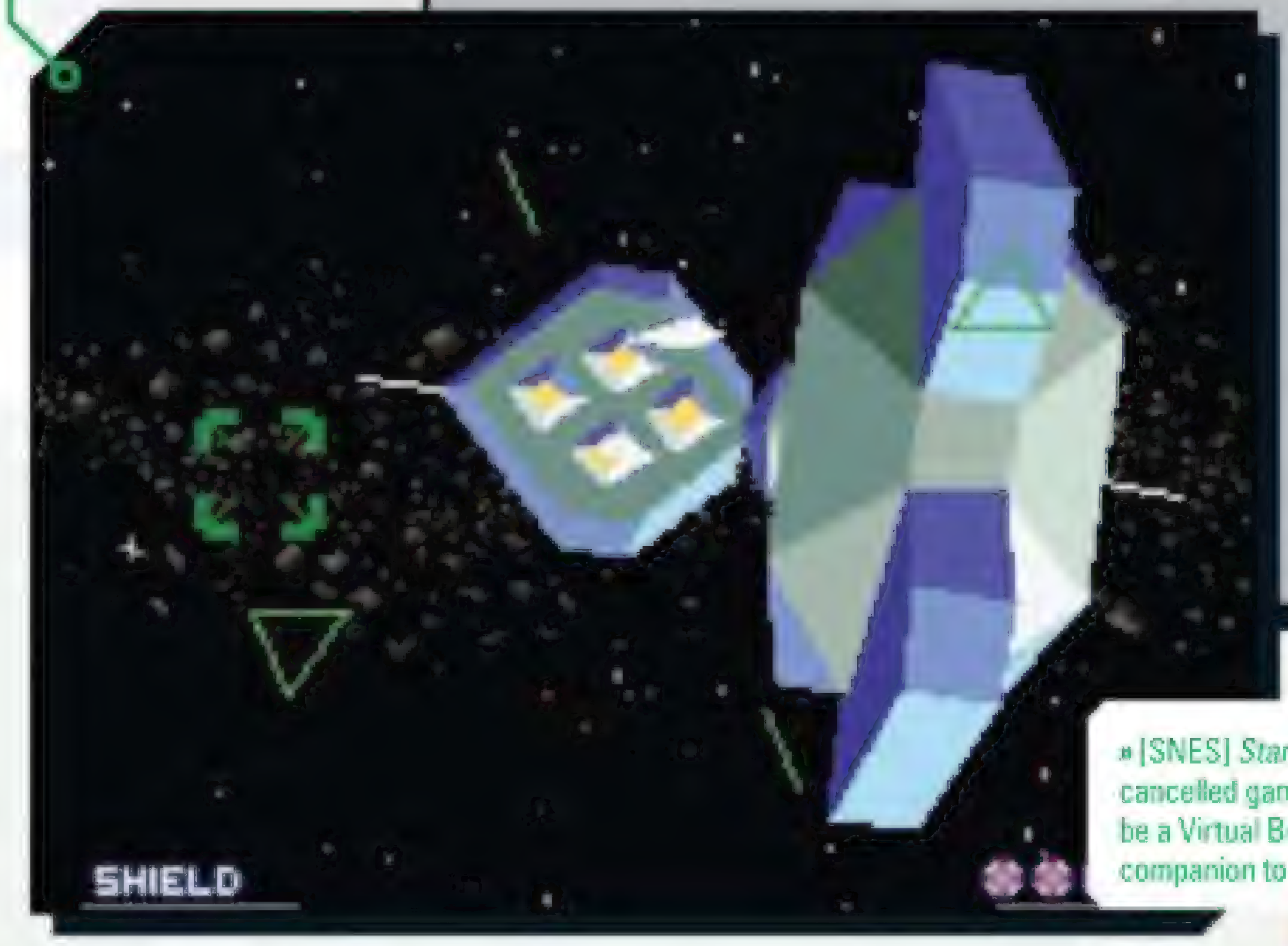
■ A close friend and solid pilot, a friendly rivalry between Falco and Fox plays out during the series. After the events of *Star Fox 64*, Falco left the team for a period, for reasons explained in the side comic 'Farewell, Beloved Falco', but returned in dramatic fashion at the end of *Star Fox Adventures*.

PEPPY HARE

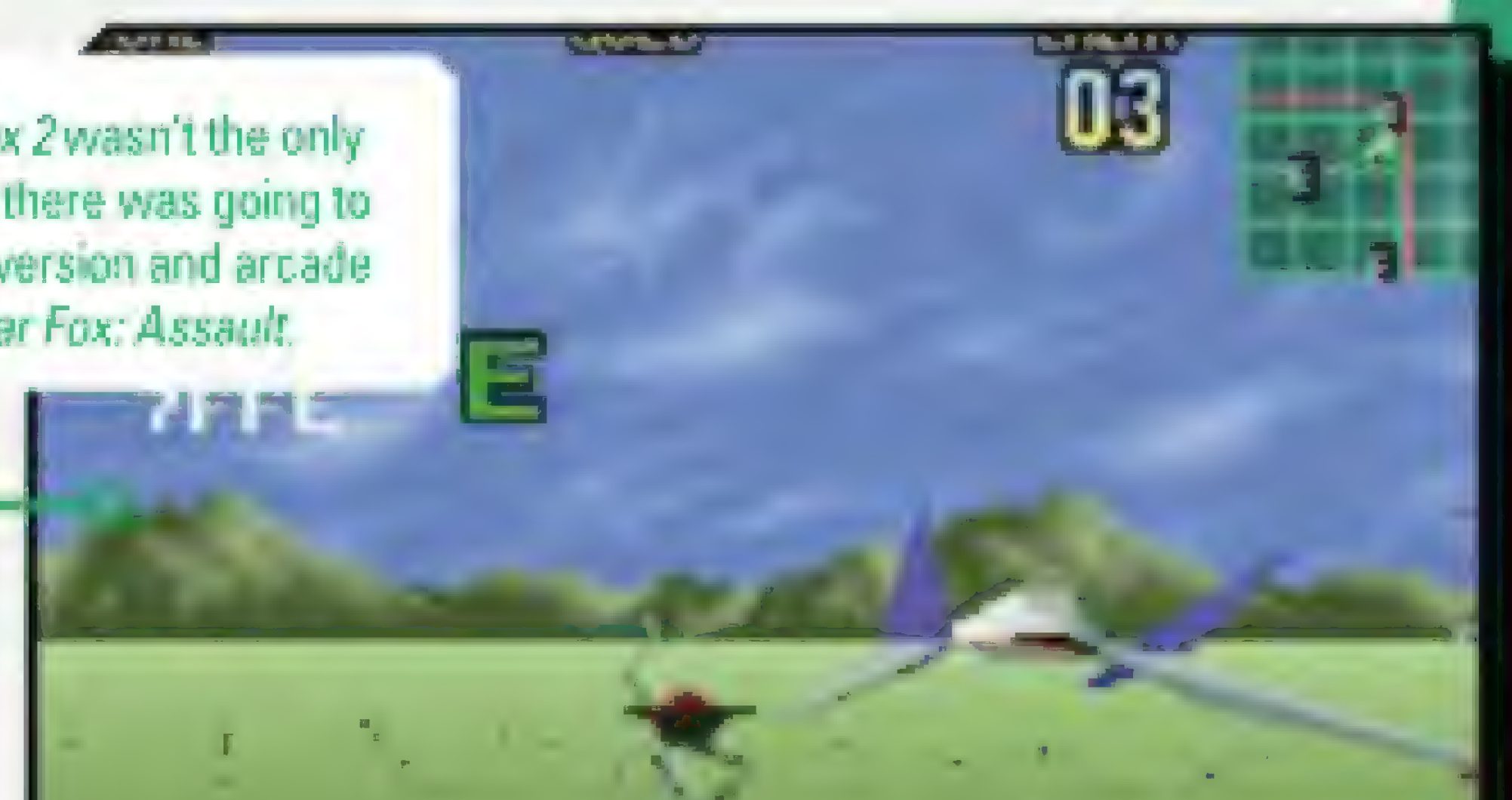


■ Following James's capture and supposed death at the hands of Andross, Peppy escaped to Corneria and took Fox under his wing, becoming something of a father figure. He brings his knowledge, experience and wisdom to the younger members of the team.

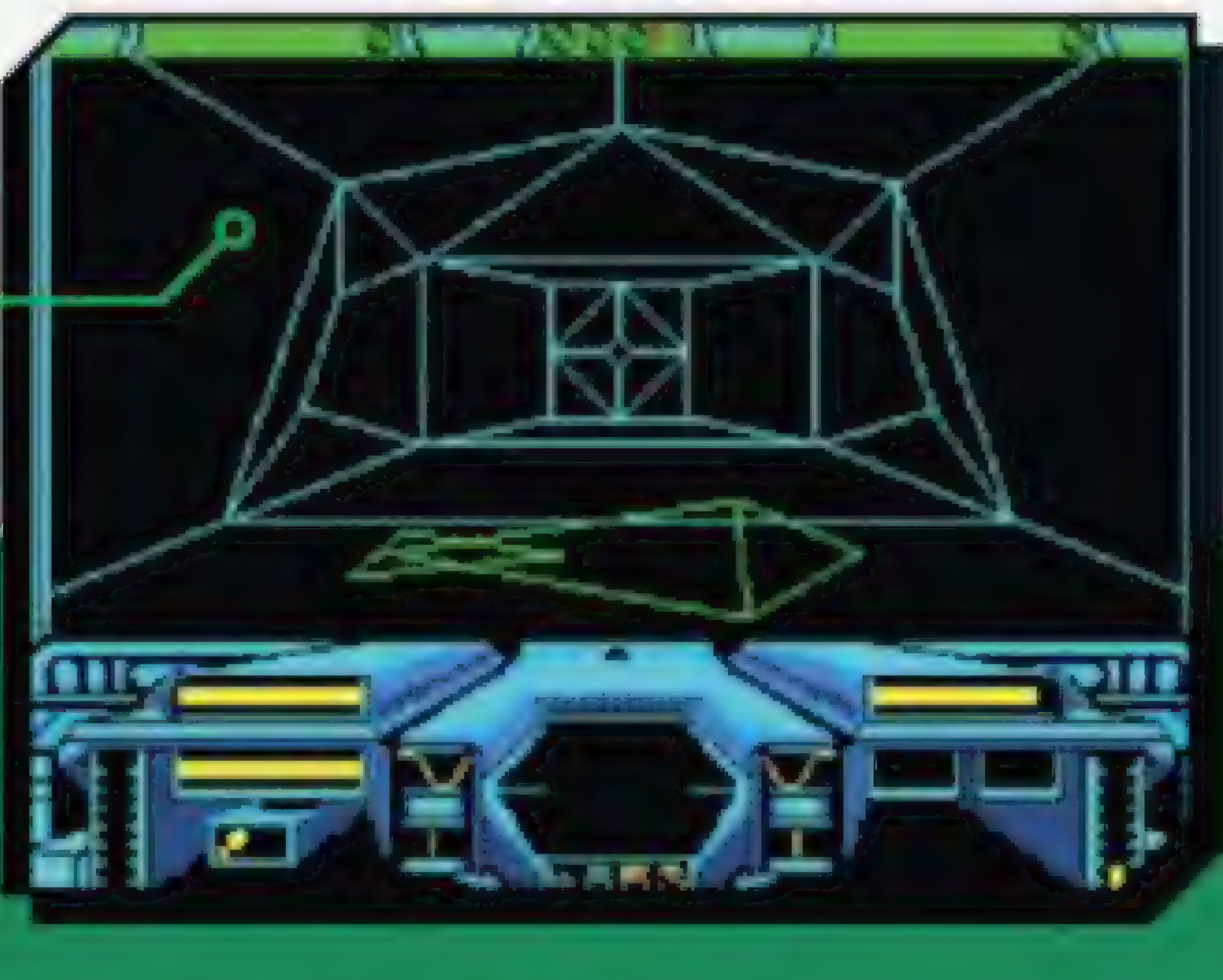
» [SNES] *Star Fox* featured many memorable boss battles, often requiring an element of strategy to beat them.

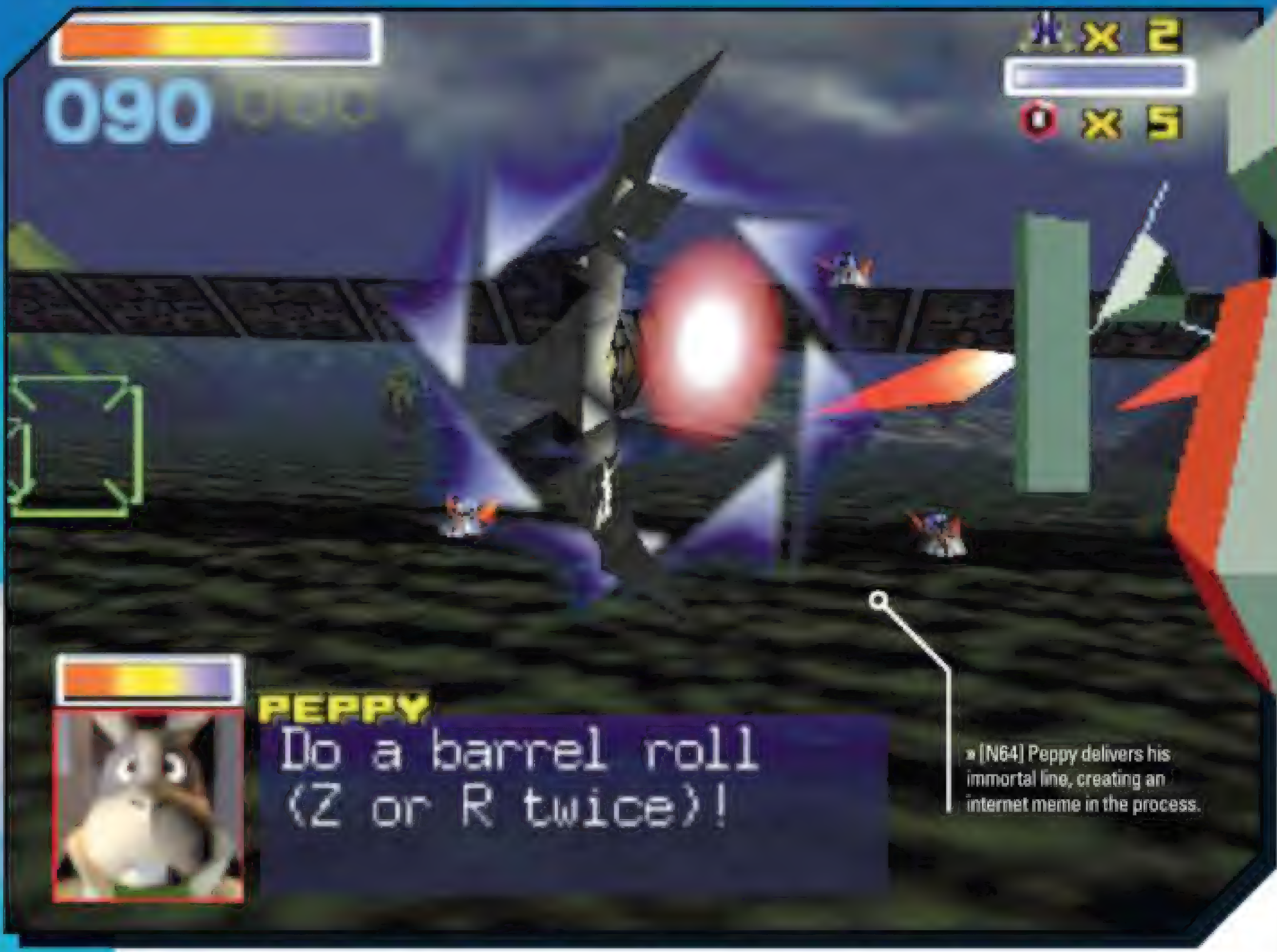


» [SNES] *Star Fox 2* wasn't the only cancelled game: there was going to be a Virtual Boy version and arcade companion to *Star Fox: Assault*.



» [ZX Spectrum] Argonaut had experience in 3D space shooters with the *Starglider* series.





» [N64] Peppy delivers his immortal line, creating an internet meme in the process.

> **“It felt like a man’s game, despite the cute anthropomorphic characters”**
> PAUL DAVIES, GAMES JOURNALIST

Despite the SNES possessing far more graphical muscle, however, with its design goal being to handle impressive-looking 2D games, Argonaut soon realised that the console would still struggle to plot and manipulate polygons fast enough for a frenetic 3D shooter. When Nintendo was told of the problem, it commissioned the creation of a new chip specifically for the game, which was to be inserted inside the cartridge to give the console the extra power it needed. The Super FX Chip as it was known, though it was originally dubbed the ‘Mario Chip 1’ (Mathematical Argonaut Rotation I/O chip), was designed by Argonaut (chiefly Rob Macaulay and Ben Cheese) and would allow the Super NES to draw and control complex 3D objects and effects in real-time.

During *Star Fox*’s development the Argonaut team was split between its London office, which was where much of the technical and engineering work was done, and Nintendo’s main headquarters in Kyoto. There, Shigeru Miyamoto, *Star Fox*’s director Katsuya Eguchi and Nintendo’s EAD department worked closely with the relocated Argonaut team members who began sharing their extensive knowledge of three-dimensional game design with the gaming giant.

In terms of the Star Fox’s origin, it’s said that Shigeru Miyamoto found inspiration from a shrine to a flying fox god that he regularly visited, and its entrance was said to be accessible through a series of arches – something which is evident in *Star Fox*’s level design. In Japanese religion and culture the fox (Kitsune) is a revered animal, and in some areas of folklore portrayed as a faithful guardian and friend – both qualities that Nintendo would instil in Team Star Fox leader Fox McCloud. For the look and design of *Star Fox*’s cast of characters, Miyamoto enlisted the help of artwork designer Takaya Imamura, who had previously designed the characters for Nintendo’s space-themed racer *F-Zero*.

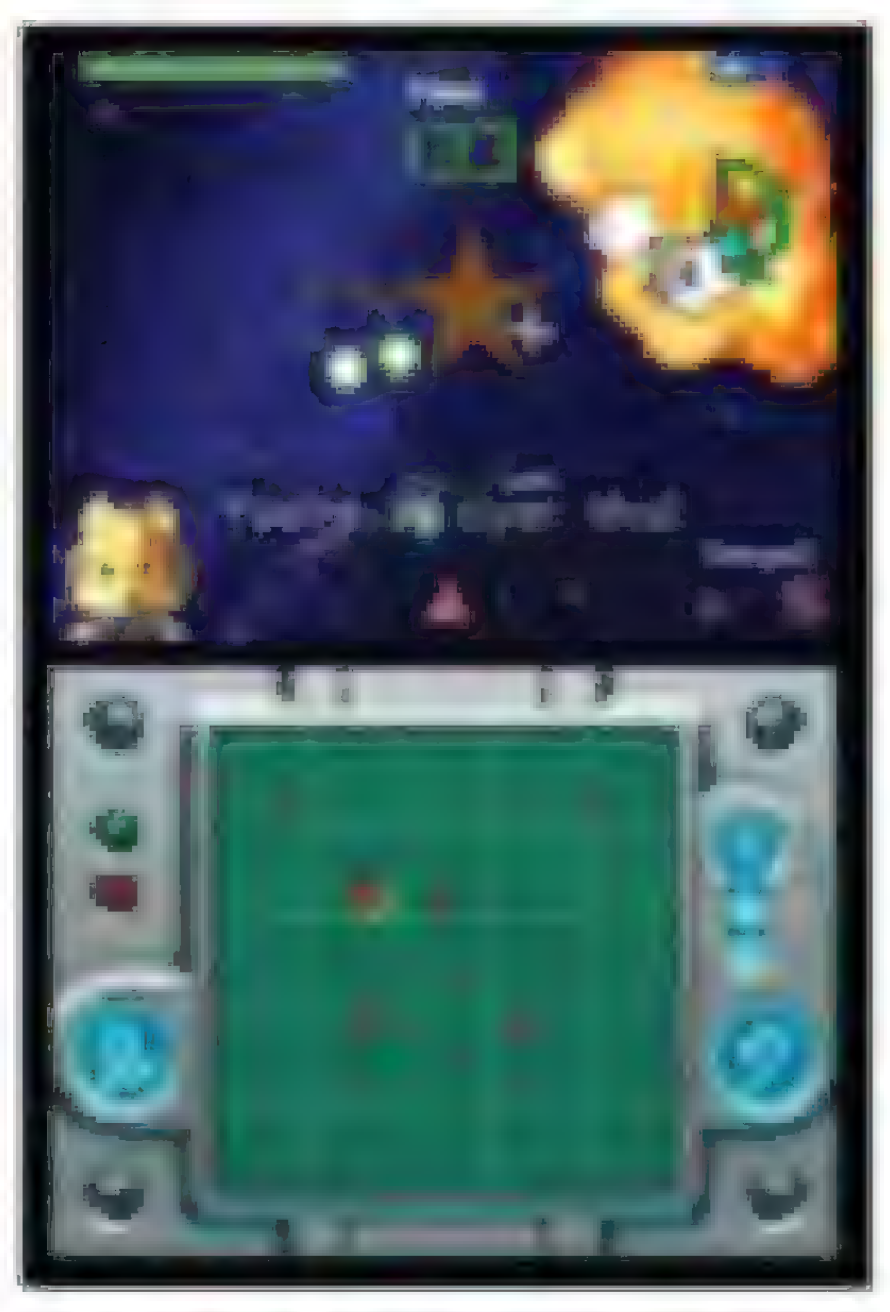
With Argonaut’s help, Nintendo found itself with one of the most impressive-looking console games yet seen, and when the press finally got to see *Star Fox* in action many were left awestruck.

“Everything about *StarWing* was magical,” remembers games journalist Paul Davies, who was writing for *Nintendo Magazine System* at the time of the game’s release, “Nintendo at the very top of its game. I particularly loved the subdued colour scheme, which made it feel very sci-fi, but the thing I remember the most is the whooshing sound effect of the thrusters. As attractive as it was, *StarWing* presented a real gamer challenge; the boss fights were especially tactics-driven. It felt like a man’s game, despite having the cute anthropomorphic characters babbling over the intercom. I played with the lights off!”

In some ways it could even be said that *Star Fox* marked a move in how console gamers would perceive ‘good’ graphics in videogames, opening their eyes to the fact that 3D console games could be exciting and possess the character of their flatter peers. Shifting over four million copies, *Star Fox* was a huge success for Nintendo, and its impact on the industry was felt through the arrival of more polygon-based console games.

With *Star Fox* being one of Nintendo’s hottest new properties, a sequel was expected. Originally it was Nintendo’s intention to release a 16-bit follow-up on the Super NES. The planned sequel, dubbed *Star Fox 2*, was another co-creation between Argonaut and Nintendo. However, it was cancelled late into its production (so late that working Japanese ROMs of the game can be found online) as a result of departments within Nintendo juggling multiple projects, which included the Virtual Boy and N64 consoles. With its Super Nintendo successor the N64 (then known as the Ultra 64) soon to be released, Nintendo took the decision to abandon the SNES sequel and release the next *Star Fox* game on its brand new console instead.

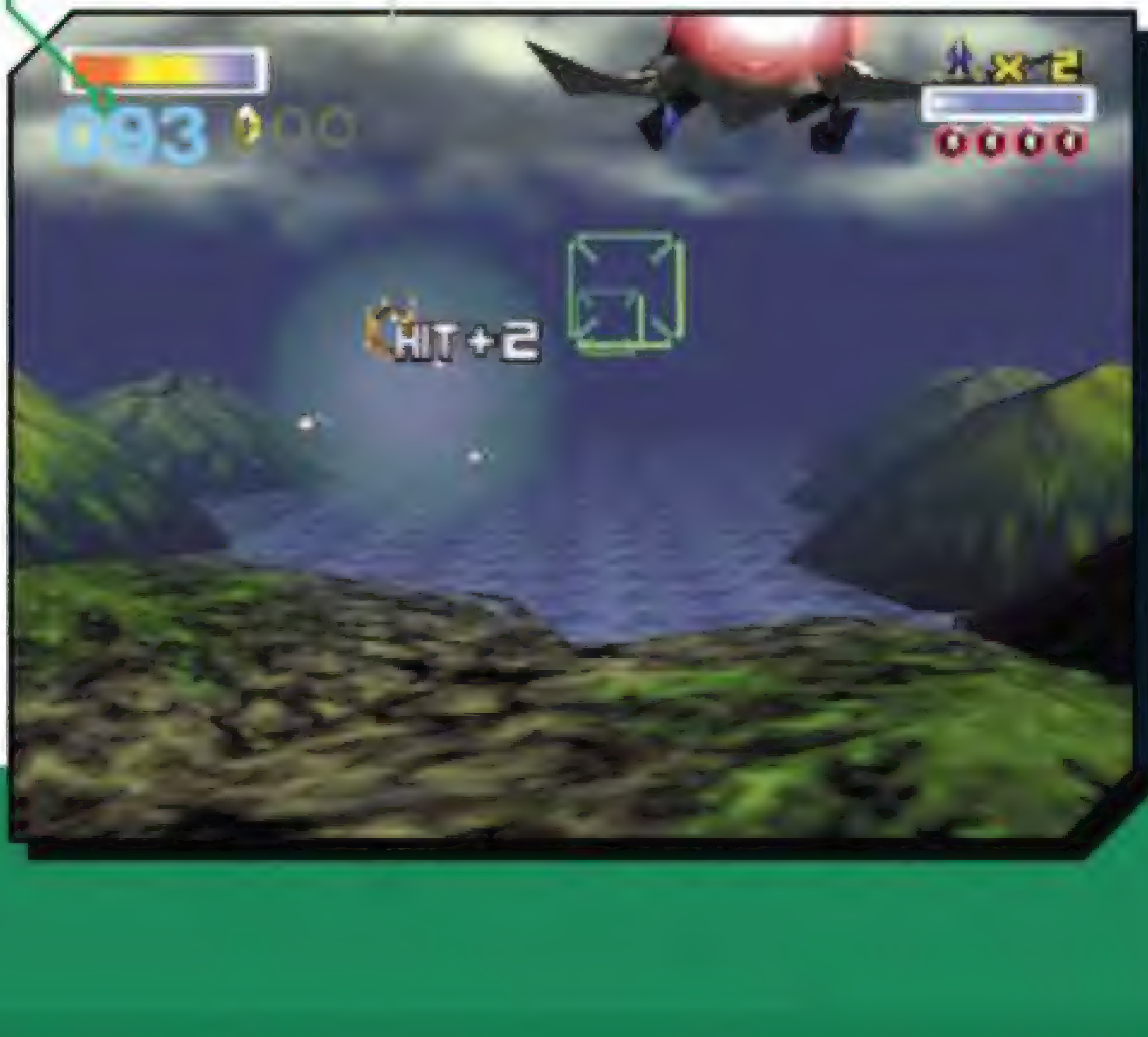
Had *Star Fox 2* seen release it would have marked a different direction for the series – adding new vehicles and characters, fusing strategy to the combat, and offering freedom of movement in its space battles. Curiously though, despite the title’s cancellation, many of *Star Fox 2*’s elements would appear in later games. These include *Star Fox 64*’s All-Range mode, which saw players control the Arwing inside an open space, and the tactical element of its gameplay, which later surfaced in *Star Fox Command*.

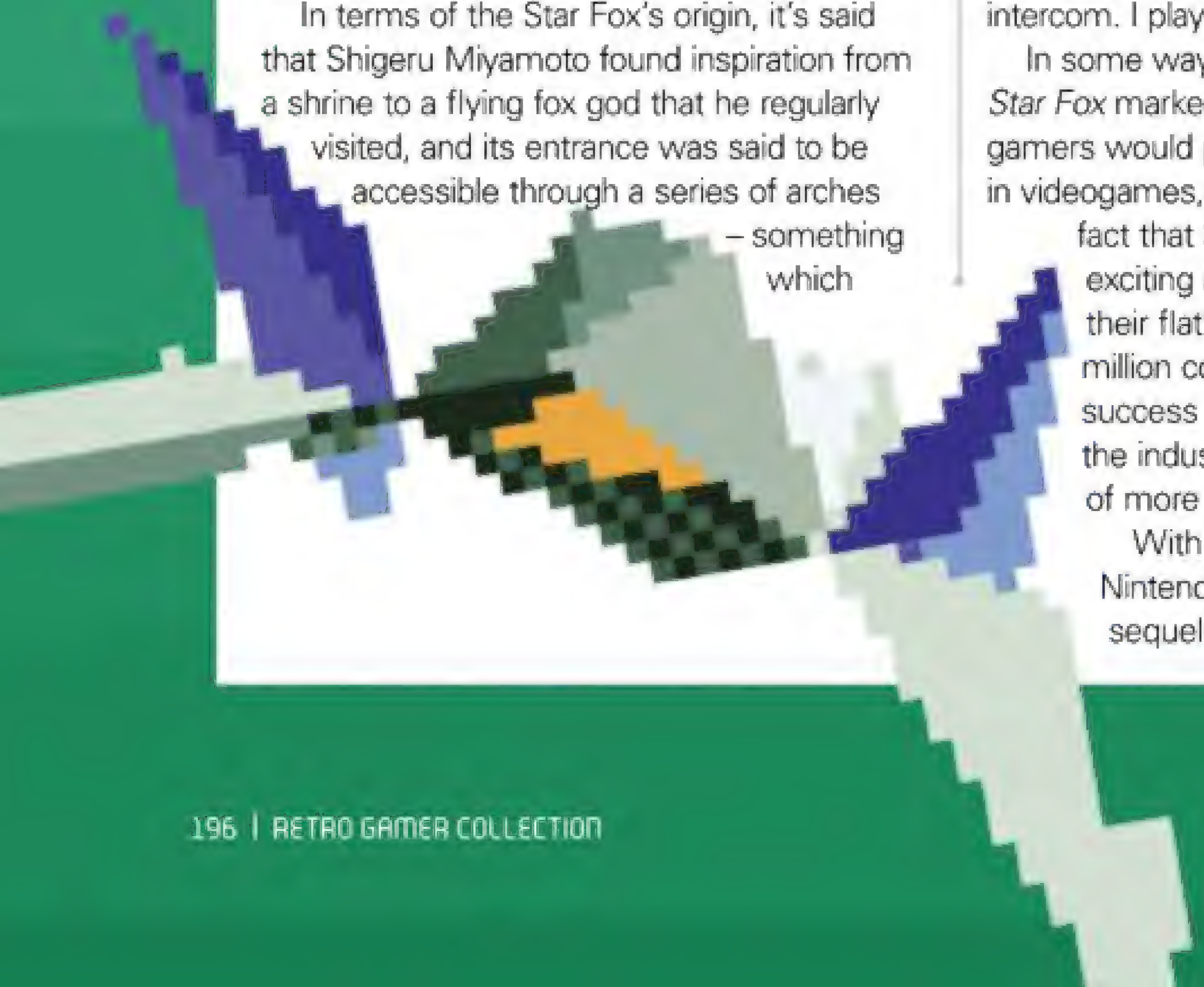


» [DS] *Star Fox Command* introduced tactics to the combat, and marked the first portable game in the series.

With a powerful new console that could easily handle 3D games, and Argonaut having helped show the firm how to do so, Nintendo decided that it would retell the *Star Fox* story. Though credit must be given to Argonaut for helping to lay down the template for the series, *Star Fox 64* (or *Lylat Wars* as it was released in Europe) is widely seen by fans to be best game in the saga. Filled with epic space battles and set-piece moments, including a memorable homage to the blockbuster movie *Independence Day*, *Star Fox 64* featured more stages, branching routes and popular new enemies, including a rival squad of pilots called Star Wolf. *Star Fox 64* captured the essence of what made the original great, but enhanced it with wonderful touches, including Rumble Pak compatibility (which launched alongside

» [N64] *Star Fox 64* (released as *Lylat Wars* in Europe) is widely regarded as the best in the series by fans.





the game) and placing more emphasis on character and story development. Selling slightly less than the original, *Star Fox 64* nevertheless raised the bar for the series in the eyes of many fans. Yet despite its critical and commercial success, an N64 sequel never appeared – resulting in a long five-year wait for the next game to eventually materialise.

During the Super NES and N64 era, Nintendo had built up a strong relationship with another UK developer. Rare, the Leicestershire-based studio behind the Nintendo hits *Killer Instinct*, *Donkey Kong Country* and *GoldenEye 64*, had become a dedicated developer for Nintendo. When it showed the hardware giant a demo of a new 3D action/adventure game that it had in the works, dubbed *Dinosaur Planet*, noticing that the game's two heroes were foxes and that one, Saber, resembled a certain Mr Fox, the studio was asked by Nintendo to adapt it into a *Star Fox* sequel. Agreeing to its request, *Dinosaur Planet* started its transformation into *Star Fox Adventures*, its development was pushed back to the GameCube and most of the original dinosaur-themed assets were carried across, setting the theme and setting for Team Star Fox's next outing.

Star Fox Adventures marked a big departure from the series' traditional space-shooter roots. While the sections do appear, the bulk of the adventure plays out on foot, with Fox and his team travelling to the prehistoric planet of Sauria, exploring large open environments, solving puzzles and battling a new dinosaur threat. A sequel quickly followed, but with Nintendo and Rare's partnership ending after Microsoft bought the studio in 2002, it was Namco that was approached to develop it.

» [GameCube] *Star Fox Command* had a bigger focus on multiplayer than previous *Star Fox* games.

Star Fox: Assault was much more in line with the earlier *Star Fox* games. Its mission comprised a more balanced mix of on-foot shooter segments, Arwing space battles and Landmaster tank sections. Though the single-player campaign was short (it can be finished in a couple of hours), this was offset by a greater focus on multiplayer. *Assault* featured a robust multiplayer component that catered for all three gameplay styles and supported up to four players. It was also well structured, with elements and new content such as maps, weapons and characters unlocked by successfully meeting certain objectives.

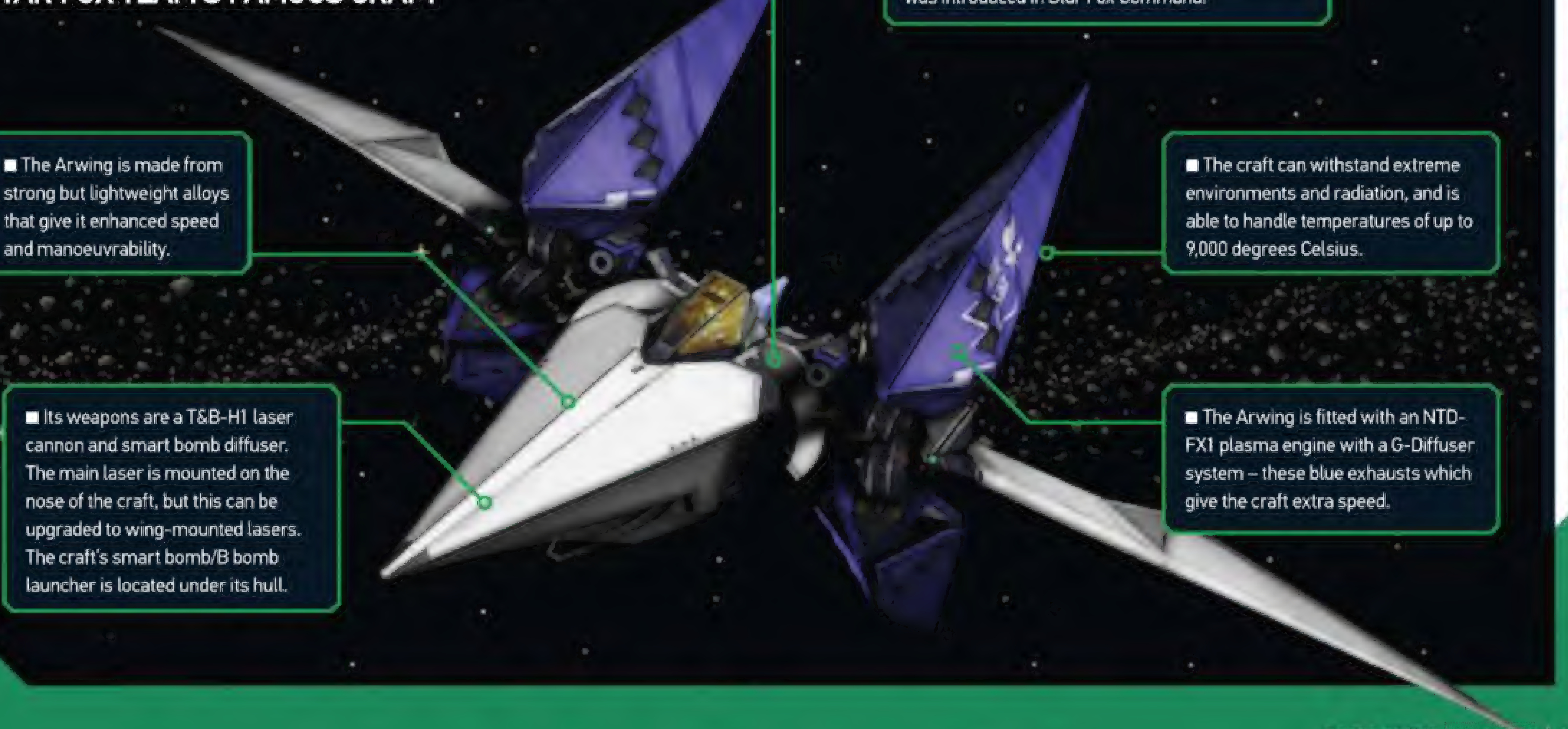
With the exception of the 3DS re-release of *Star Fox 64*, the last game in the *Star Fox* saga is currently *Star Fox Command*. Developed by Q-Games, the studio of Dylan Cuthbert (who had previously worked on *Star Fox* while at Argonaut), *Command* marked the first portable entry in the series. Released for the Nintendo DS in 2006, it made use of the handheld's dual screens to combine the series' traditional space combat battles with real-time strategy. Its gameplay saw players control multiple characters on a turn-based battlefield; when contact with an opposing unit was made, the action would then switch to an open area air All-Range style battle. It was also the first game in the series to offer online multiplayer and feature multiple endings – which has left a bit of a question mark hanging over the current situation of the main story.

The future of the *Star Fox* series remains equally unclear. The last flutter of activity was *Star Fox 64 3D*, evidence at least that Nintendo hasn't completely forgotten about the series. However, with *Star Fox* celebrating 20 years this year, the Wii without a *Star Fox* episode, and the Wii U's GamePad seemingly the perfect device for enhancing and directing those team assaults, we have a strong feeling that it won't be too long before we see those Arwings launch into action once more.

» [GameCube] *Star Fox Adventures* saw Rare nurturing another Nintendo IP. It may not be a *Star Fox* game in the traditional sense, but it's still a solid sequel.

Anatomy of an Arwing

WE TAKE A LOOK UNDER THE HOOD OF THE STAR FOX TEAM'S FAMOUS CRAFT



■ The Arwing was designed by Slippy Toad's father, Beltino Toad. There are two versions of the Arwing: the original MKI model, and the MKII version which was introduced in *Star Fox Command*.

■ The Arwing is made from strong but lightweight alloys that give it enhanced speed and manoeuvrability.

■ The craft can withstand extreme environments and radiation, and is able to handle temperatures of up to 9,000 degrees Celsius.

■ Its weapons are a T&B-H1 laser cannon and smart bomb diffuser. The main laser is mounted on the nose of the craft, but this can be upgraded to wing-mounted lasers. The craft's smart bomb/B bomb launcher is located under its hull.

■ The Arwing is fitted with an NTD-FX1 plasma engine with a G-Diffuser system – these blue exhausts which give the craft extra speed.

Star Fox Star Map

THE PLANETS AND AREAS THAT MAKE UP THE LYLAT SYSTEM

AQUAS

■ One of two oceanic planets (the other being Zoness), this planet's surface is completely covered in water. It is believed to have once been the home to an ancient civilisation owing to ruins found on its seabed.

SECTOR Y

■ The setting for another epic space battle between the Cornerian Army and Andross's Venom forces, it is infamous for its high levels of radiation and volatile magnetic readings which can cause instrument and ship malfunction.

ZONESS

■ The second of two oceanic worlds of the Lylat System, Zoness was once a beautiful world that became a premier holiday destination for the Cornerians owing to its many islands. Now polluted by Andross, it has now become a toxic planet.

CORNERIA

■ The home of the Cornerians, it is the most developed planet of the Lylat System. It's a verdant world where most of the Lylat population live.

SARGASSO

■ The Sargasso Space Territory is hunkered down within the Meteo Asteroid Belt and is home to Andross's team of deadly ace pilots, Star Wolf.

KATINA

■ Corneria's arid sister planet, Katina is also Corneria's first line of defence. It became the setting for one of the series' most memorable moments: the Battle for Katina – an *Independence Day* homage that saw Team Star Fox coming to the rescue of the planet's main military base.

METEO ASTEROID BELT

■ Believed to have once been the Lylat System's ninth planet, this belt is made up of thousands of tiny asteroids and was used as an invasion route to Corneria by Andross and his forces in *Lylat Wars*.

PAPETOON

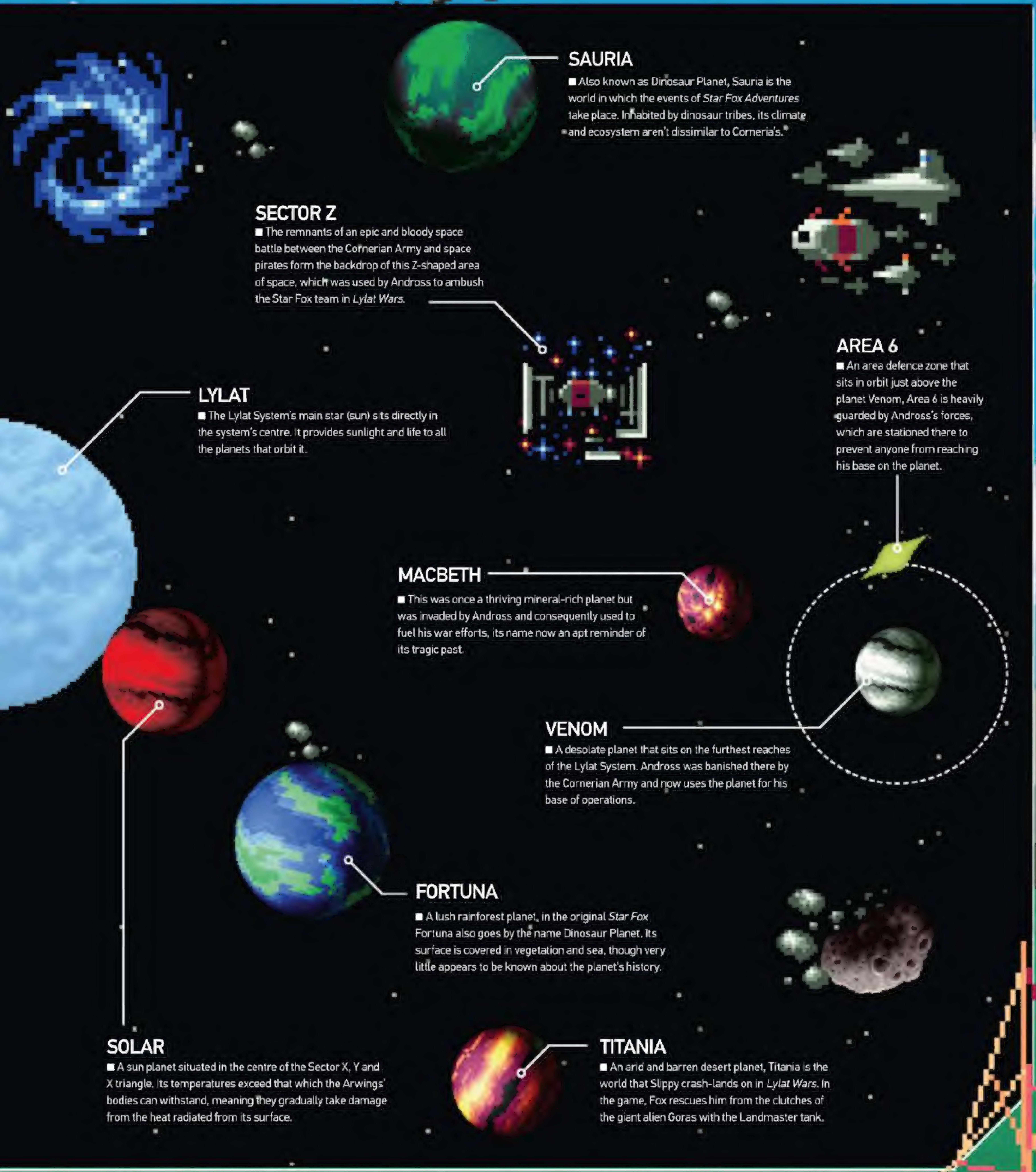
■ A small brown planet, colonised by Cornerians and the birthplace of Fox McCloud.

SECTOR X

■ This nebula was once used to conceal a secret research base by Andross, until Fox was successful in his efforts to destroy the base in *Lylat Wars*.

FICHINA

■ *Star Fox*'s planet Hoth essentially, Fichina is an ice world and home to a Cornerian outpost. It's where important and classified documents are kept, making it a regular conflict point between the Cornerian Army and Andross's forces.



SAURIA

■ Also known as Dinosaur Planet, Sauria is the world in which the events of *Star Fox Adventures* take place. Inhabited by dinosaur tribes, its climate and ecosystem aren't dissimilar to Corneria's.

SECTOR Z

■ The remnants of an epic and bloody space battle between the Cornerian Army and space pirates form the backdrop of this Z-shaped area of space, which was used by Andross to ambush the Star Fox team in *Lylat Wars*.

LYLAT

■ The Lylat System's main star (sun) sits directly in the system's centre. It provides sunlight and life to all the planets that orbit it.

AREA 6

■ An area defence zone that sits in orbit just above the planet Venom, Area 6 is heavily guarded by Andross's forces, which are stationed there to prevent anyone from reaching his base on the planet.

MACBETH

■ This was once a thriving mineral-rich planet but was invaded by Andross and consequently used to fuel his war efforts, its name now an apt reminder of its tragic past.

VENOM

■ A desolate planet that sits on the furthest reaches of the Lylat System. Andross was banished there by the Cornerian Army and now uses the planet for his base of operations.

FORTUNA

■ A lush rainforest planet, in the original *Star Fox* Fortuna also goes by the name Dinosaur Planet. Its surface is covered in vegetation and sea, though very little appears to be known about the planet's history.

SOLAR

■ A sun planet situated in the centre of the Sector X, Y and X triangle. Its temperatures exceed that which the Arwings' bodies can withstand, meaning they gradually take damage from the heat radiated from its surface.

TITANIA

■ An arid and barren desert planet, Titania is the world that Slippy crash-lands on in *Lylat Wars*. In the game, Fox rescues him from the clutches of the giant alien Goras with the Landmaster tank.

Starstrike II

STAR WARS MEETS BATTLE OF THE PLANETS

» CPC 464
» REALTIME GAMES
» 1986

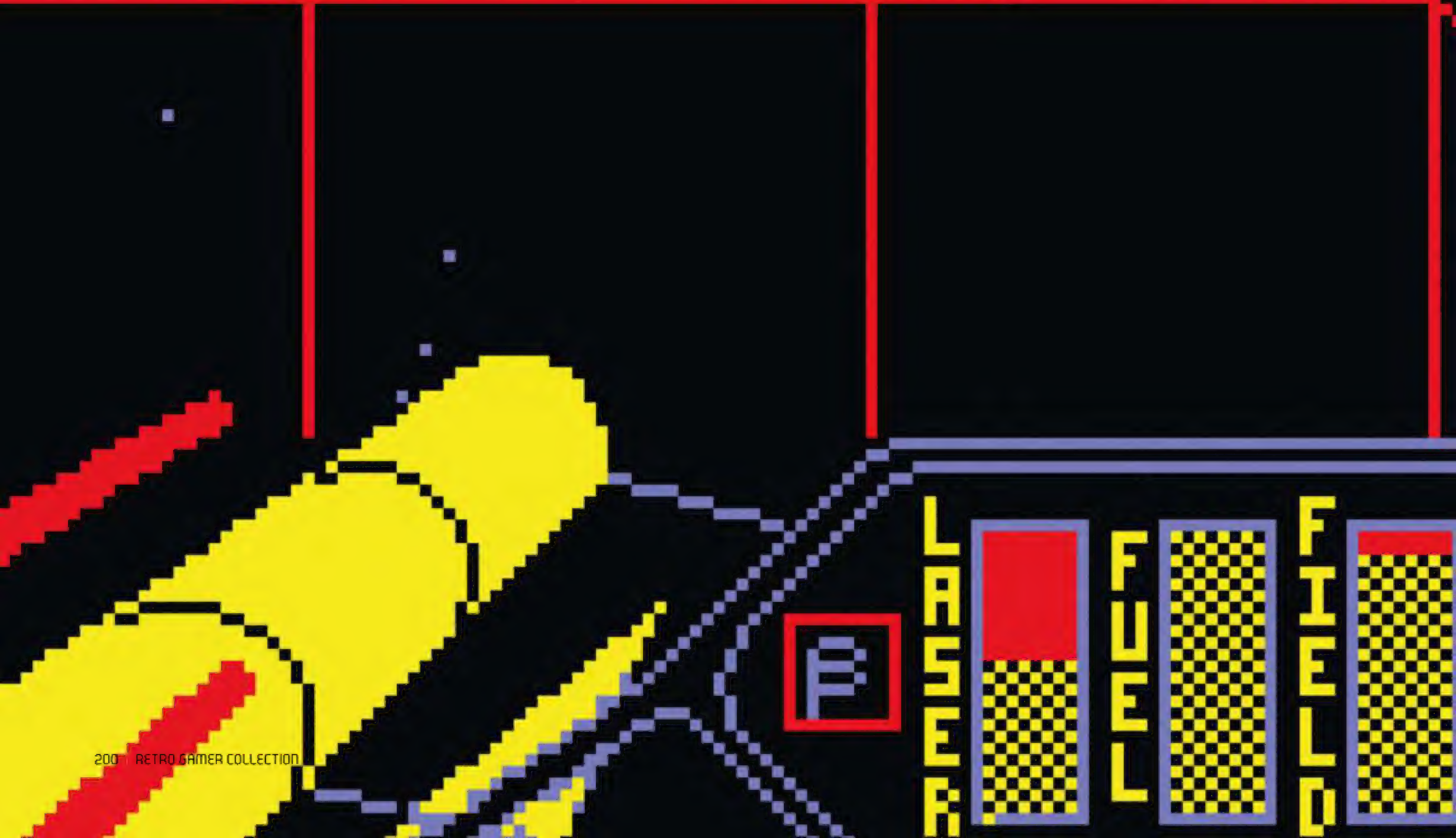
The original 3D *Starstrike* was ace. It might have looked a bit rough around the edges – though it was one of those 3D vector shooters that were rendered in raster graphics, it had that blocky-looking early CPC game look – but beneath its surface was a brazen albeit decent *Star Wars* arcade clone.

The sequel, though, was a big step up over the first game, particularly in terms of its looks. I remember playing it for absolutely hours on my CPC, completely transfixed by its graphics and that stunning-looking cockpit. The wireframe models finally getting some meat on their bones also looked great and gave the visuals a real sense of depth. The gameplay no longer aped that of a popular vector arcade game and was better for it.

Picking up where the last game ended, you're once again fighting the evil alien 'Outsiders'. Piloting the next generation of Starstrike fighters, your mission is to sink any chances the Outsiders have of forming another attack. This is achieved by neutralising their 22 planets, which are split into three distinct categories: Military, Industrial and Agricultural, which basically indicates their difficulty.

You start by first selecting the planet you wish to neutralise, which is achieved by destroying its central control reactor. Reaching them isn't easy, though. No, sirree. This variety-packed mission involved navigating gridded barriers that were heavily guarded by missile systems, engaging in tricky dogfights with the Outsider fleet, and competing in a tarted-up version of the *Star Wars*-inspired trench run level from the original game. Then, of course, you had to actually destroy the reactor, and then you had to do all that a further 21 times to complete the game. Suffice to say I never got anywhere near completing it.

On release, *Starstrike II* scored highly in the magazines of the day and was deserving of the praise that it got. It's a lovely-looking 3D shooter, and if you're looking for something that's a bit *Elite*, a bit *Star Wars*, and quite a bit of a challenge then you should definitely check it out.



AGRICULTURAL
V

NORTH & SOUTH
NIGHT GUNNER
F/16 COMBAT PILOT
APACHE
MISSIO
AMMO
60
30 Minutes per side

FROM THE ARCHIVES

RETRO GAMER DIGS UP THE FILES OF THE CLASSIC COMPANIES OF OLD

Digital Integration

From humble beginnings on the ZX81, it produced one of the best-selling games of all time on the ZX Spectrum as well as a host of realistic simulations for the PC and 16-bit computers. So strap in tight as we take a peek inside the flight log of Digital Integration…

As Retro Gamer reclines in the study of Dave Marshall, former co-owner of Digital Integration, the tranquility of leafy suburbia is punctuated periodically by the thunder of jet engines roaring overhead. We are in Farnborough, home to the famous annual airshow and former base of the Royal Aircraft Establishment (RAE), an entirely appropriate location to chat with one of the founders of the distinguished software house. Because if you know anything at all about Digital Integration, you'll know of its reputation for producing realistic and entertaining flight simulations; consequently, Dave Marshall's background prior to starting up the software house should come as no surprise.

"I was at Boscombe Down in their A-squadron performance test division as a student engineer," begins Dave. "And while there I did a medical course to qualify for aircrew as they were always testing a new range of military aircraft." Thanks to friends in the various test sections, Dave would arrange air experience flights on a variety of aircraft such as the Jet Provost, Hercules and Sea King before he began as an engineer at RAE Farnborough in the flight systems department. In 1976, he moved to RAE Bedford.

"My first project at Bedford was designing what we called the first digital feel system in the country," says Dave, "which was to replace the old system that relied on springs and dashpots to give feel to the control column. The system I designed had three hydraulic jacks which were driven by a mini-computer."

The benefit was clear: the computer could be modelled with the characteristics of any particular aircraft, saving a huge amount of time and effort in designing individual simulators.

☐ INSTANT EXPERT

The name Digital Integration came from the combination of hardware and software as shown by the ZX81 high-res graphics add-on for *Night Gunner*

Eventually the name was shortened to DI. "We realised Digital Integration was a bit too tricky to say after a few glasses of wine," smiles Dave Marshall

***Fighter Pilot* appeared** on many compilations including US Gold's famous *They Sold A Million*

The Heinkel that appeared on the cover of *Night Gunner* featured triangles instead of Swastikas in order to avoid distribution problems in Germany

Chopper sim *Tomahawk* was originally entitled *Thunderbird* until DI's legal advisors suggested it should be changed. Early adverts from 1984 show the original name

DI never moved from its original premises at the Watchmoor Trade Centre in Camberley, Surrey; it expanded by purchasing neighbouring units

Rod Swift's Tornado cockpit was made from solid wood and required eight people to lift. "I should have told Rod that fibre-glass was the future!" jokes Kevin Bezant

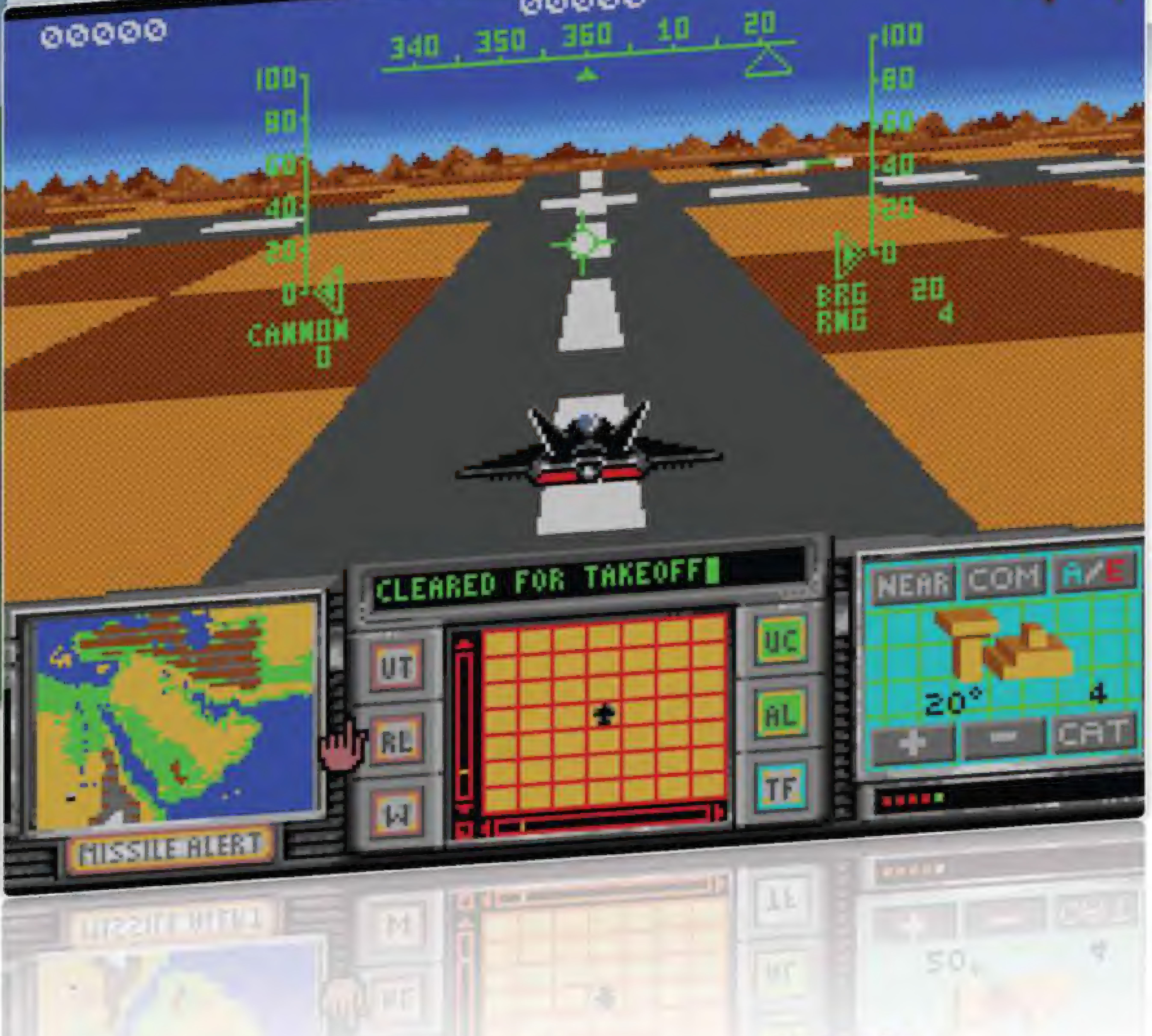
DI was bought by Titus in 1998, who folded itself in 2005

The First Game

While at Bedford, Dave began to write his own flight simulation in his spare time. When he was transferred back to Farnborough in 1979 to work on a new standard flight systems computer for the USAF, it coincided with the dawn of a new era in home computing – specifically the Sinclair ZX81. "I remember thinking, wouldn't it be great to get a flight simulator on this micro? So, using my experience from Bedford, I started writing a simulation on the ZX81."

The resulting game, *Fighter Pilot*, was rudimentary in appearance yet beneath its simple display lay some impressive mechanics that realistically mimicked the flight and controls of an F-15 Eagle. In conjunction with fellow RAE Farnborough systems engineer Rod Swift, a follow-up to *Fighter Pilot* was soon in the works. "Rod was very much into hardware design, which I knew nothing of," explains Dave, "while I was more software-orientated. He give me hints and help on hardware design, with

AIRSTRIKE USA



> **“I remember thinking, wouldn’t it be great to get a flight simulator on this…”**
>
> DAVE MARSHALL ON DISCOVERING THE ZX81

me giving him tips on programming. That’s when Rod began to learn to program.” As Dave continued to develop his second ZX81 game, *Night Gunner,* Rod Swift designed a 16k ram-pack for the micro-computer, making the game one of the first all-assembler software products for the machine.

With *Night Gunner* on the market, Dave desperately wished for a home computer that offered the improvement in processing power and graphical display that would do his complex computations justice.

In April 1982, Clive Sinclair answered his wish. “The ZX Spectrum, that was a huge leap,” says Dave excitedly. “At RAE Bedford I learned how to calculate the full 3D perspective of a runway and at last we could put that into a graphical display.” For Dave, with his background and degree in aeronautical systems engineering, it was the chance to create an accurate simulation for the mass market.

“I was up on all aspects of aircraft stability and control and covered partial differential equations for aircraft behaviour in my degree,” he continues, “so I was able to program approximate versions of these into the Spectrum.”

With Dave busy on the Spectrum version of *Fighter Pilot* and Rod Swift updating *Night Gunner* for the same computer, designing and writing games was occupying the majority of their spare time. “We went to several early Micro fairs with the ZX81 games and Spectrum versions of *Fighter Pilot* and *Night Gunner,*” says Dave, “and that was when DI took off. I remember a distributor called Microdealer coming up to us and ordering 500 copies of each game. We thought he meant 500 a month, but he said “No, 500 a week! And don’t stop until we tell you!””

Six Months

Dave and Rod were still working at RAE Farnborough by day and using Rod’s home address as a base for Digital Integration. “Basically, our nine to five jobs became an eight-hour interruption to the software side,” laughs Dave. “I would cycle home at lunchtime and get on the phone because WHSmiths wanted an order for 5000 *Night Gunners*. It was absolutely phenomenal, and we simply couldn’t keep up with it. They loved the quality of our products.” Consequently, Dave and Rod made a decision: they would give Digital Integration six months to see if it could work full time, and packed in their jobs at the RAE. Shortly afterwards, they discovered a small unit at the nearby Watchmoor Trade Centre and persuaded an assistant from the RAE to join them as secretary. The gamble paid off.

In 1984, the Spectrum version of *Night Gunner* and *Fighter Pilot* continued to sell well and Digital Integration was under considerable pressure to convert the latter to the Commodore 64. “Microdealer was screaming out for *Fighter Pilot* on the 64,” says Dave, “but neither Rod or I could program in 6800 as we were both Z80 based. So we recruited our first outside programmer, a guy named Darrell Dennies.” The C64 version of *Fighter Pilot* also proved very popular and Dennies would go on to convert a number of games for DI. ▶

☐ BY THE NUMBERS

1 instruction page for *Fighter Pilot* on the ZX81

12 famous race tracks in *TT Racer*

500 copies of Fighter Pilot a week demanded by Microdealer early in 1983

Action **16** – One of DI’s label that specialised in re-releasing third party and older DI games

86.875 was the average score for Digital Integration’s games in *Crash Magazine*

90% score for *Hind* in *PC Gamer* magazine

332: Pages in the manual for *Tornado*

15,000: square miles of flying area in *Fighter Pilot,* unprecedented in 1983

» At a ZX Microfair, Rod Swift stands between his brother Tim and a friend of Dave Marshall's, co-opted to help at the show.

“The development team got bigger with each project as the complexity increased”

DAVE MARSHALL

☐ WHERE ARE THEY NOW?

Dave Marshall (above)
“When I left DI, I never wanted to see another flight sim as long as I lived,” reveals Dave. Instead he took an interest in trading stocks before eventually spreading the love of his favourite instrument, the banjo, and teaching to a class of over 30 students. After having had one of his kidneys removed in 2011 following the discovery of an 8.5cm cancerous tumour, Dave is now semi-retired, although his love of flight simulations has recently been rekindled thanks to Laminar Research’s *X-Plane*.

Rob Cobain
Like Dave Marshall and Rod Swift, Rod was unable to continue for long at DI after the Titus takeover. Rod remains in the industry: today he works at high-performance bespoke software house Igence.

Robin Heydon (above)
Upon leaving DI, Robin moved to California, working for a number of companies, including DI’s great rival, Microprose. After ten years in the computer entertainment field, he moved into internet-based testing and today works in Bluetooth wireless technology as a specification writer.

Rod Swift
After DI was bought out by Titus, Rod remained there another year before finally leaving DI sometime in 1999. Since then he has been involved in further software development and more recently website design. We were sadly unable to track down Rod in time for this article.

Kevin Bezant (above)
Along with fellow DI employees Matt Smith, Todd Gibbs and Dave Proctor, Kevin formed the development team Razorworks in 1996. He left there in 2008 to join Rebellion.

TIMELINE

1982
DIGITAL INTEGRATION IS FORMED BY DAVE MARSHALL AND ROD SWIFT. IT PUBLISHES *NIGHT GUNNER* AND *FIGHTER PILOT* ON THE SINCLAIR ZX81, BOTH PROGRAMMED BY DAVE MARSHALL

1983
SIGNIFICANTLY IMPROVED VERSIONS OF *FIGHTER PILOT* AND *NIGHT GUNNER* APPEAR ON THE ZX SPECTRUM WITH THE LATTER NOW WRITTEN BY ROD SWIFT

▶ Meanwhile, Dave and Rod spent 1984 planning and writing the follow-up to *Fighter Pilot*. Keen to build on the success of the action flight sim, they opted for something slightly different as Dave explains. “I still had contacts at RAE Bedford who could give me assistance in terms of helicopter dynamics, handling characteristics and so on, and I’d done a fair amount of flying in helicopters myself at Boscombe Down.” At the time, the Apache (from Hughes Helicopters) was the most exciting and well known aircraft and so became a natural focus for DI’s next game. With a level of openness and co-operation that seems incredible today, Dave contacted Hughes, requesting a wealth of technical data, and the manufacturer was remarkably forthcoming. “Hughes sent us a ton of material, including video that it’d produced demonstrating the chopper’s handling. It was incredible.”

Even with Dennies working on the C64 version of *Fighter Pilot*, the issues of working on complex and realistic simulations became obvious to Dave and Rod. “The main problem with flight sims was that they took too long,” bemoans Dave, “and there was only one of us who did the research, design and programming.” Add in graphics, sound and modelling and it was clear each game would require a lengthy gestation period – too long if Digital Integration was to survive for any major length of time. The level of detail involved would never permit a quick turnaround.

Tomahawk Arrives

With Mervyn Estcourt’s *Speed King* helping Digital Integration through this awkward period, finally in the winter of 1985, Apache helicopter simulator *Tomahawk* was ready to take off. The simulation was an instant success and garnered a Crash Smash as well as glowing reviews in many other magazines. DI’s patience and attention to detail was paying off, as was its playtesting.

“We wanted to make sure that we could claim all our games had realistic handling,” says Dave, “despite being restricted to either a keyboard or a simple joystick. So although it was never possible to have every control of a helicopter, we were convinced that we should never lose sight of the fact it was entertainment. No matter what accurate specs or modelling we had in the game, it could not be too frustrating and it had to be fun. It was a fine line.” *Tomahawk* was a bestseller, despite DI’s slight faux pas with its name. “Why we didn’t call it *Apache* I’ll never know,” grimaces Dave, “but we ended up thinking about the weapon used by the North American Indians instead, using that as the connection to the Apache.”

Joining DI around this time was Rod Cobain, whose role was a mix of operations, sales and account management. “I knew I was working for a software house out of the ordinary,” says Rod, “as its flight

» Dave Marshall shakes hands with an RAE Bedford rep for a *Tornado* publicity shot.

»[ZX81] Dave’s original handwritten layout for the original ZX81 version of *Fighter Pilot*.

1984
DARRELL DENNIES JOINS DI AND BECOMES ITS FIRST HIRED PROGRAMMER; HE BEGINS WITH THE C64 VERSION OF *FIGHTER PILOT*. MEANTIME DAVE AND ROD BUSY AWAY ON *FIGHTER PILOT* FOLLOW-UP, *TOMAHAWK*

1987
DI BEGAN HIRING EXTRA PROGRAMMERS, INCLUDING KEVIN BEZANT, IN ORDER TO DEVELOP BIGGER GAMES FOR THE 16-BIT COMPUTERS. DEVELOPMENT FOR DI'S FIRST 16-BIT GAME, *F/16 COMBAT PILOT* BEGINS

1991
AFTER A GAP OF THREE YEARS, DI RELEASES ITS FINAL 8-BIT GAMES: *F/16 COMBAT PILOT* AND THE DAVE PERRY/NICK BRUTY SHOOTER *EXTREME*

1993
AFTER A THREE-YEAR DEVELOPMENT, *TORNADO* IS FINALLY RELEASED ONTO THE AMIGA, ATARI ST AND PC

1996
THE YEAR OF HELICOPTER SIM *APACHE*, WITH INTERACTIVE MAGIC LICENSING THE GAME FOR RELEASE IN THE US. IT'S A HUGE SUCCESS

1998
FRENCH PUBLISHER TITUS MAKE AN OFFER TO DAVE MARSHALL AND ROD SWIFT FOR DI WHICH THEY ACCEPT, ENDING 16 YEARS OF INDEPENDENT SOFTWARE DEVELOPMENT AND PUBLISHING

2005
TITUS REPORTED BANKRUPT. VARIOUS MEMBERS OF DIGITAL INTEGRATION HAVE RELATIVELY MIXED REACTIONS.

2012
MICROPROSE CO-FOUNDER JW "WILD BILL" STEALEY RELEASES DI'S *APACHE LONGBOW* ON HIS IENTERTAINMENT NETWORK. MORE OF DI'S GAMES ARE NOW AVAILABLE AT WWW.GOG.COM

simulations on the 8-bit machines were already standing out against the arcade market. The passion of Dave and Rod to deliver as much realism as possible was amazing, especially given the restrictions of the technology." Rod Cobain would soon have a key role to play, but in the meantime Rod Swift was working on a different type of simulation – and an unusual licence. "Rod was very keen on motorbikes and in fact rode a bike to and from work every day," says Dave, "so he was understandably keen to do a 3D racing simulation."

Rod Swift's attention to detail mirrored that of Dave Marshall's flight simulations, producing another bestseller in 1986, backed by a tie-in with Team Suzuki. "It was a promotional idea that we came up with," remembers Dave, "and we had a launch day at Silverstone, which was great fun, and we met up with the team and all the Suzuki riders." However, even though *TT Racer* was a success, Dave Marshall was already eyeing up the fast-incoming 16-bit computers as a more suitable home for his processor-hungry flight sims.

New Blood

However, we remain with the 8-bits for the moment, and 1987 saw new programmers climb on board including ex-electronic technician Kevin Bezant. "I'd been working at Thorn EMI in one of its weapons divisions," recalls Kevin, "and had learnt there how to program. I'd already had a game published on the ZX81 called *Lunar Rescue* and a number of games for the Spectrum too."

Kevin began work at Digital Integration in May 1987. "I was both impressed and intimidated by the 3D games that DI were producing – mainly because my coding experience to date had involved creating 2D sprite games. The 3D games involved a fair bit of maths, which wasn't my strong point!" laughs Kevin, who worked on disk copyright protection before moving to games such as *Bobsleigh* and *ATF*.

It would not be long before he found himself involved in DI's first 16-bit project, which marked a notable change in game development as Dave Marshall describes. "Keeping up with improving technology and products was getting more difficult and complex so the teams involved got bigger and bigger. We had to hire more coders and ancillary staff to keep pace." Nonetheless, DI's attention to detail remained undimmed. "We had the Farnborough Airshow that year," recalls Dave, "and I just walked up to the General Dynamics tent, gave them my business card and asked to speak to the F/16 test pilot." Dave proceed to quiz him about all manner of information not in the public domain – "There's nothing pilots like more than to talk about their aeroplanes," notes Dave – before security intervened and escorted the DI boss out of the tent. Despite this encounter, General Dynamics offered considerable support for the development of *F/16* and the simulation was incredibly well received on practically every format it was released on.

However, the gap between tent-pole games and the increasing size of the DI staff had begun to worry Dave and Rod, especially as their next game was to be the biggest yet. "The development team got bigger with each project as the complexity increased but you never saw a reduction in development time. The average flight sim took between 18 months and two years to develop, whether it was on the ZX Spectrum or PC," recalls Dave. The scenario could not be allowed to continue, and fortunately they had a solution.

Branching Out

"We needed to branch out beyond flight sims and do products that had a shorter development time," notes Dave, "and Rod Cobain came up with the idea of another label called Action 16." Thanks to his previous work in the duplication industry, Rod had an excellent range of contacts:

"He knew all the software houses and had a rapport with them that enabled him to source decent products," says Dave. In particular, Rod had a good relationship with several French-based publishers such as Ubisoft and Loriciels, which enabled DI to re-release several popular games including the comical US Civil War sim, *North & South*. "I remember signing the deal on that game and cracking open the champagne. It was by far the best-selling game on Action 16," smiles Dave. Selling other companies' back catalogues provided DI with valuable new revenue that could sustain it between its own big releases. Eventually the success of Action 16 led to another label for the publication of original third-party software: Dream Factory. However, Dream Factory did not prove as successful, despite intriguing titles such as *Supaplex*.

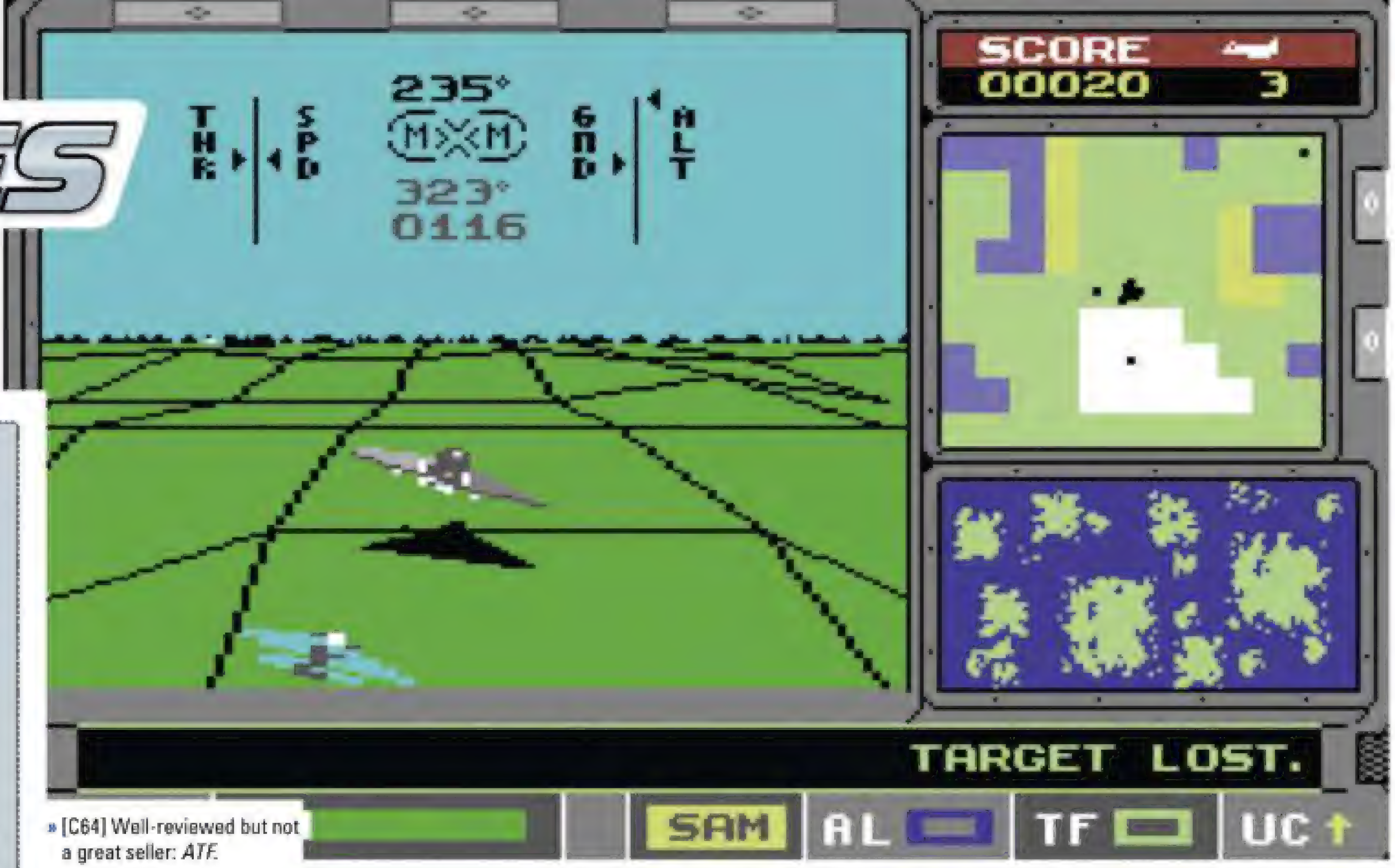
Ged Hughes
Noel Edmonds
adidas

» These two lucky lads won a trip in Noel Edmonds' helicopter thanks to their proficiency in *Tomahawk*.

That next big project was *Tornado*, based on the European-built jet fighter made famous in the recent Iraq war. It was an obvious choice for the next simulation. "That's true," agrees Dave, "but it was also because there was a good chance that we could get support from the RAF and British Aerospace who built the aircraft." This assistance remained essential if DI were to maintain its pedigree of highly accurate simulations. Working on the *Tornado* project was Kevin Bezant. "*Tornado* was the 'biggie' in terms of development," he says, ▶

☐ LENSLOKED

Like most software publishers, DI was always concerned about piracy. As it was producing games for the higher end of the market and was hardly the most prolific of publishers, it was an exceptional worry for Dave and Rod. "I remember this company had a product called Lenslok," shudders Dave, "and we thought we should try it. It only cost about 4 or 5p per unit, but it seemed to be that or have your game pirated." Of course, there was a considerable downside to the infamous copy protection system as Dave recalls. "We got a lot of grief over it and we lost a lot of time to customer support. But we felt we didn't have a choice."



» [C64] Well-reviewed but not a great seller: *ATF*.

SIX OF THE BEST

Fighter Pilot

Re-released countless times, and possibly the only game from US Gold's *They Sold A Million* compilations that actually did. A huge step up, Dave Marshall created a combination of accurate flight mechanics and thrilling gameplay in *Fighter Pilot*.

Night Gunner

Digital Integration wanted an arcade-style game to release alongside *Fighter Pilot* and Rod Swift produced the goods with this brilliant wartime shooter. Offering two similar stages set over 30 missions, *Night Gunner* wasn't complex, but very playable.

Tomahawk

After *Fighter Pilot*, Dave Marshall turned to helicopter simulation and produced the amazing *Tomahawk*. At a time when most games were being turned around within four to six months, its elongated development was well-used.

F/16 Combat Pilot

F/16 had been a decent hit for DI on the Amiga and Atari ST before it ported the game back onto the 8-bits, albeit with greatly reduced options and missions. The programmers did a remarkable job squeezing the game down for the C64.

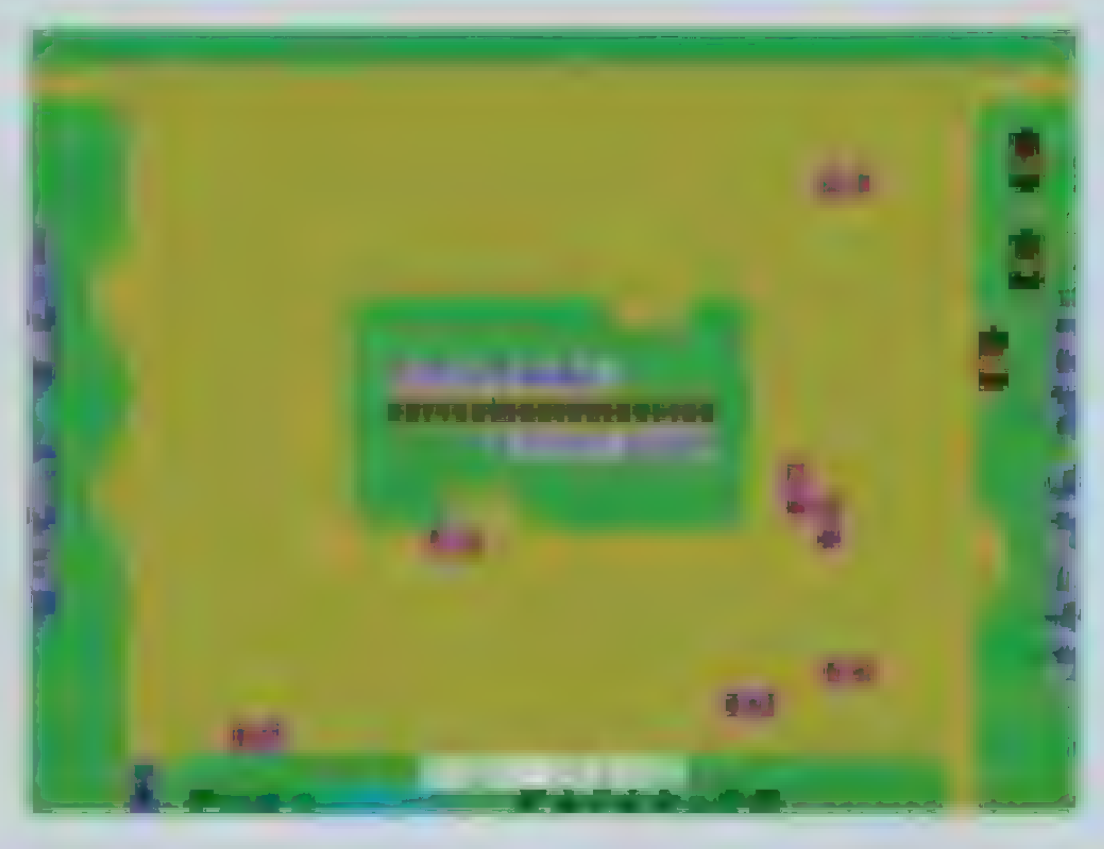
Tornado

F/16 laid the foundations; *Tornado* took the development to the next stage with formation flying, improved graphics and greater mission variety. DI's attention to detail and Rod Swift's promotional simulator helped *Tornado*'s success.

Hind

Like *Tornado*, *Hind* took the good work of a previous game (in this case *Apache*) and improved upon it. Utilising the same engine, DI even pioneered multi-game multiplayer as players scrapped over a virtual battlefield.

THREE TO AVOID



Taxi!

Maybe we're being a little harsh considering when it was released, but this early third-party effort compared badly to Rod and Dave's own games and was a poor seller. It wasn't a particularly attractive game, and one best relegated to the past.

AIR
ICE
RECORD
SPEED
TIME
011 KM/H
0 00

Bobsleigh

The Spectrum version managed to adeptly reproduce the thrill of the high-speed winter sport; something was lost in translation, however, as the Commodore 64 *Bobsleigh* ended up with a fraction of its playability, which was a crying shame.

Top Gun: Combat Zones

With Dave Marshall departed, practically all semblance of serious simulation had disappeared, and while technically impressive, *Combat Zones* lacked the depth and accuracy of simulation for which DI had become famous. A sad departure from form for the company.

"and it took three years to produce after originating as a single page design from Dave Marshall." Dave himself managed the project and developed the flight model, as well as liaising with the RAF and British Aerospace. A small, yet dedicated team was assembled by DI to bring together all the elements of the game: Nick Mascall was responsible for all the 3D models, Matt Smith created the artwork, Tony Hosier programmed the Amiga version while Robin Heydon – who had already impressed Dave and Rod with his work converting the Amiga *Boulderdash* clone *Supaplex* to the PC – designed the UI elements.

"We had a lot of help from RAF Honington on *Tornado*," reveals Dave, "and we went there several times to spend the day with their aircrews." Kevin Bezant recalls these trips fondly. "I remember being invited up to the base in Suffolk where they had a real Tornado flight simulator; it was an inspiring day and we came away with some great photographic material which we incorporated into the game's front end." Kevin is adamant the relaxed manner in which the game was developed was key in its success. "I don't ever recall a deadline being imposed and in retrospect, we were given licence to make the game perfect." Not that it was easy, concludes Kevin: "There was a sense of purpose within the team to get the job done. During the last months of the project, the entire team were working some extremely long days."

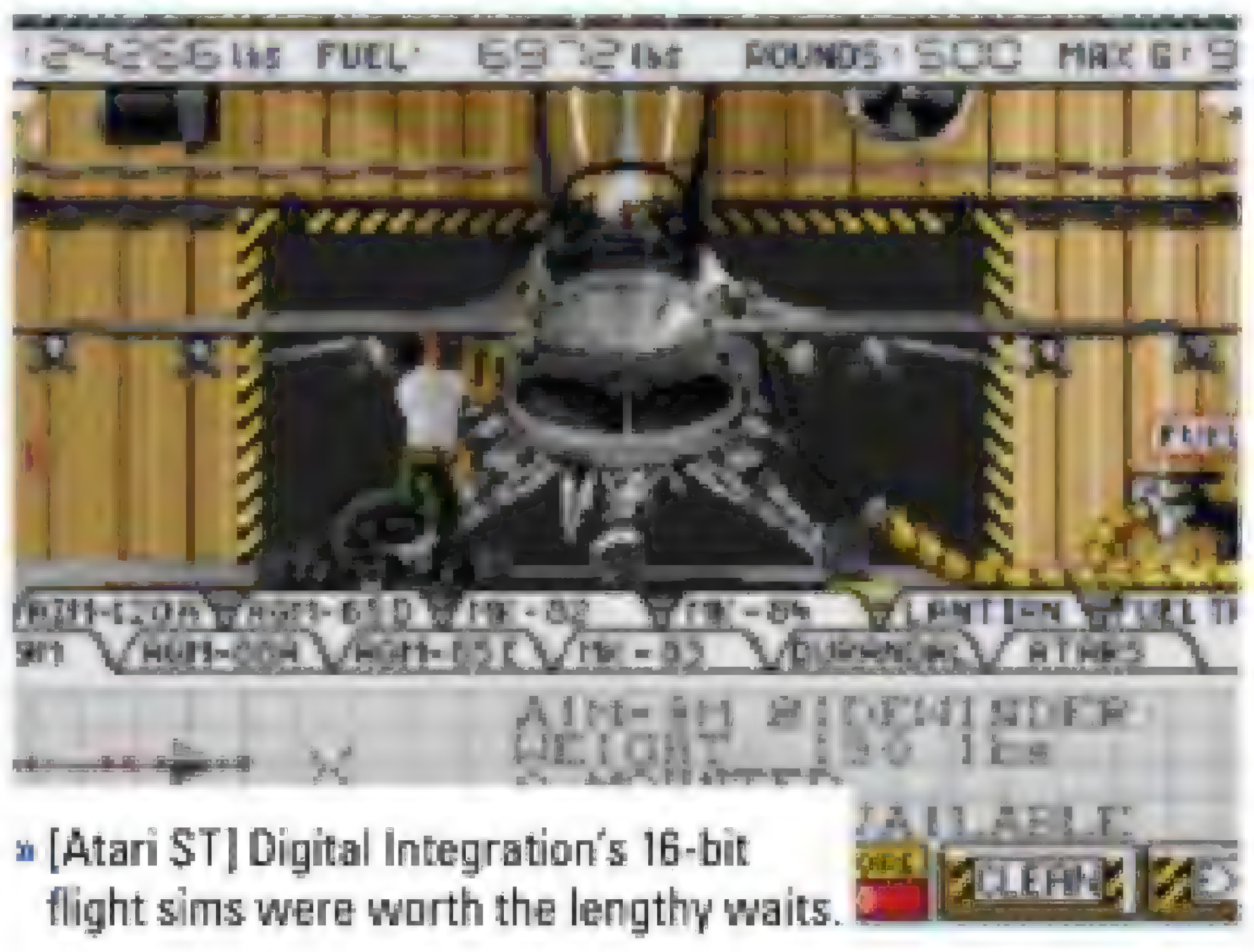
Promoting Tornado

With *Tornado* nearing completion, Dave Marshall jetted off to the States to try and find a distributor for the game. Interestingly, DI's great competitor, Spectrum Holobyte were interested. "I went over to San Francisco to demonstrate *Tornado* to the Spectrum Holobyte guys, and I showed them the mission planning and then the game with six Tornados flying in formation before splitting up and co-ordinating an attack. They were gobsmacked," says Dave, proudly.

DI were also keen to make sure *Tornado* was well-promoted, and Rod Swift had a big role to play here as Dave describes. "Rod built a full-size Tornado cockpit which he had scaled up from an Airfix model; we had this model and a mock-up ejector seat, mounted a PC onto it and put it on castors. Then we'd wheel it onto a trailer and take it to various exhibitions and shows to demonstrate the game." One of the shows the DI cockpit was taken to was the 1993 Airshow at RAF Fairford. "There was a Tornado there and its aircrew came into our tent. I remember them sitting in our cockpit and playing with the bomb aiming, while exclaiming 'How the hell did you get all this information?!'" chuckles Dave.

After *Tornado*, in a move that echoed the early days of *Fighter Pilot* and *Tomahawk*, DI moved to helicopters with the popular *Apache Longbow*, which in name made up for Dave's admitted oversight with

> **"This guy turned up completely out of the blue, saying he represented Titus"**
>
> DAVE MARSHALL ON DI'S FIRST ENCOUNTER WITH THE FRENCH PUBLISHER



» [Atari ST] Digital Integration's 16-bit flight sims were worth the lengthy waits.

» A prestigious Crash Reader's award for the Spectrum version of *Fighter Pilot*.

» [Atari ST] Deadly chickens in the Action 16 re-release of Coktel Visions' *Gobliins 2*.

SPEED
040 KM/H
TIMING
00:40:00
SPLIT
00:00:00
RECORD
00:59:76
GBR
CERVINIA
BRAKE

» [Amstrad] The start of the Italian course Breuil-Cervinia in *Bobsleigh*.

Tomahawk ten years previously. Yet, together with an update of its earlier F/16 sim (*F/16 Fighting Falcon*) and another highly-regarded helicopter sim, *Hind*, pressure from bigger rivals and an increasingly crowded market was beginning to take its toll on DI.

"We'd had interest from Interactive Magic to form some deal in 1996," remembers Dave, "but we just didn't think the time was right. *Apache* had just been released and was doing decent business." Two years later, and with sales of games such as *Hind* proving disappointing, French publisher Titus declared an interest in purchasing DI. "This guy turned up completely out of the blue, saying he represented them. We were a few months away from launching *F-18*, so in a difficult period – and he gave us a take-it-or-leave it offer."

After a brief discussion, Dave and Rod accepted and DI became a subsidiary of Titus. "It was tough to survive with a large team and our specialist type of product," frowns Dave, "so we felt we didn't really have a choice." The reasons for Titus seemed obvious: it had no PC games background to speak of while DI had plenty of experience on the machine. "What we wanted to do in terms of 3D onscreen technology and displaying the 3D perspective, was not possible on formats such as the PlayStation," says Dave, "and with computer technology improving at an incredible rate and our product aimed more at the serious, maturer end of the market, we were solely focused on the PC. Titus must have wanted a slice of that."

Titus Woes

Unfortunately, Dave did not remain at the new Titus-owned DI for long. "With *F-18*, I was only involved with mission testing, but as the project was nearing conclusion, I was busy doing this every day." Dave had a big family holiday booked around the time of its release and DI's new owners were unhappy, insisting Dave cancel the holiday and oversee the release of the new simulation. Discussions took place and an agreement was not reached; when Dave returned to the Watchmoor Trade Centre after his holiday, it was clear he had no further role at DI. "The funny thing was my eldest son was working at DI as a tester. So I'd run him there every day, drop him off then come home!"

» Dave Marshall sits at his desk circa 1988.

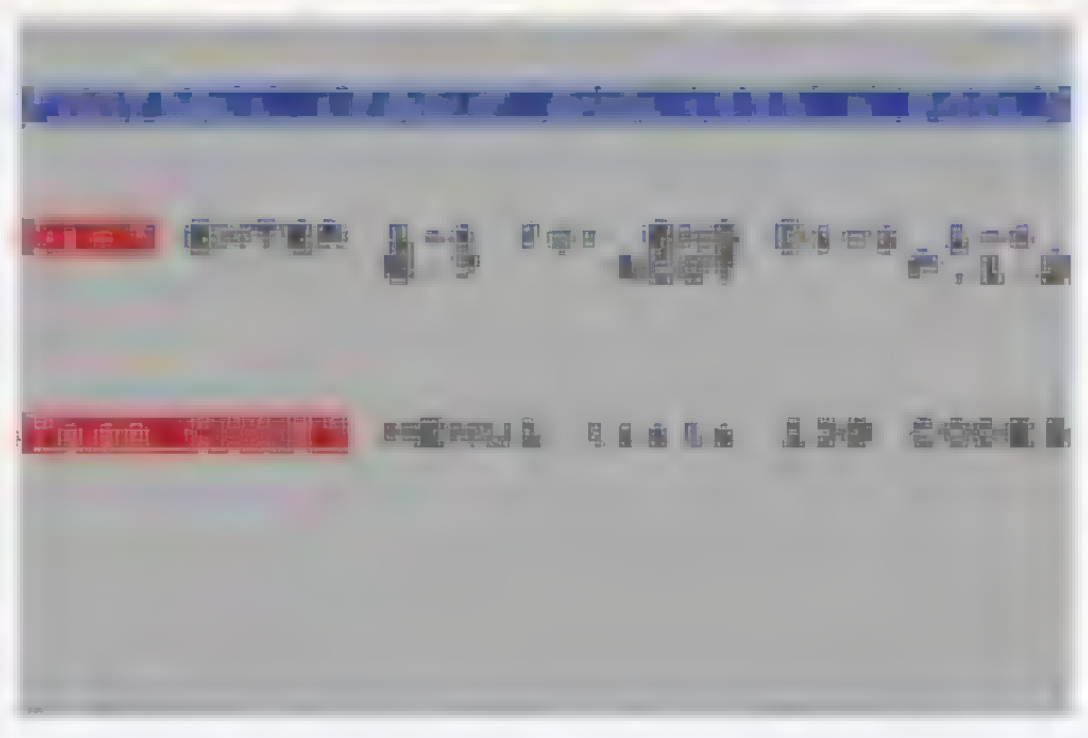
Dave Marshall has mixed feelings on the abrupt end to his career at DI. "We were used to doing things our way and Titus' style was different to that. It was disappointing as I'd obviously been running it for many years with Rod; but in other respects I was glad to be out." Rod Cobain is a little sharper when it comes to the French company. "Dave and Rod built a company based on realism and quality. I believe Titus made a fundamental mistake by thinking you could put out any product through the label and expect it to sell."

Rod Swift remained at DI for a short while before also leaving. The company was technically still in existence up until the end of Titus in 2005, yet it was a pale shadow of its former self. Despite this unfortunate end to the story, Dave still has fond memories of his time at the helm, especially during the Eighties.

"It was fun because the company was small, the industry was new and we were all learning. We were also proud of the fact that we developed and published our own product. They were exciting times." Looking back on his career since, Rod Cobain agrees. "The talent and ethos at DI provided a benchmark for all my future views of software publishing. I owe the guys there a huge vote of thanks – DI was the best games company I ever worked for."

Special thanks to Dave Marshall, Rod Cobain, Kevin Bezant and Robin Heydon for their time and Andrew Fisher and Ant Harper of Retrogear UK for images.

☐ EARLY GAMES



Like many early Eighties software houses, Digital Integration was often approached by people offering their latest games. As programmers themselves, Dave and Rod concentrated mainly on their own games but nevertheless published a brace of early titles from third parties. *Taxi!* was a simple arcade game that sold very few copies, while *Football League Analysis* was a Pools prediction program written by Dave Marshall's father-in-law. "He was a scientist at the RAE but his passion in life was football," says Dave, "and being a mathematician by training, when the Spectrum came out he taught himself how to program so that he could write something that would predict football results on the basis of form." Unfortunately, it sold even less than *Taxi!*. "You had to put in so much data by hand it became a bit laborious and I think we ended up selling 50 copies or something!" laughs Dave.

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» An early Spectrum advert with *Tomahawk* and *TT Racer* still sporting their original names.

☐ THE KING OF SPEED

The story of how the Commodore 64 version of *Full Throttle* came about is an odd one. "Mervyn [Estcourt] wrote the game and offered it to us," said Neil Hooper of Micromega in an interview from **Retro Gamer** 81, "and we actually declined, partly because it was getting expensive to distribute games, and partly because Mervyn was becoming a bit of a superstar and we felt the advance we were going to have to offer him would have been more than we would have got back." Micromega was aware that it had credibility in the Spectrum market – but not the C64 – so also fretted over whether the game would sell at all for it. Estcourt subsequently approached Digital Integration who released the game for the C64 under the new name of *Speed King* in order to avoid any issues with Micromega. Strangely, another ex-Micromega programmer, Derek Brewster wrote *Speed King 2* for the Spectrum which was published by budget label Mastertronic, before Brewster's own label Zeppelin published an official sequel, *Full Throttle 2*, in 1990.

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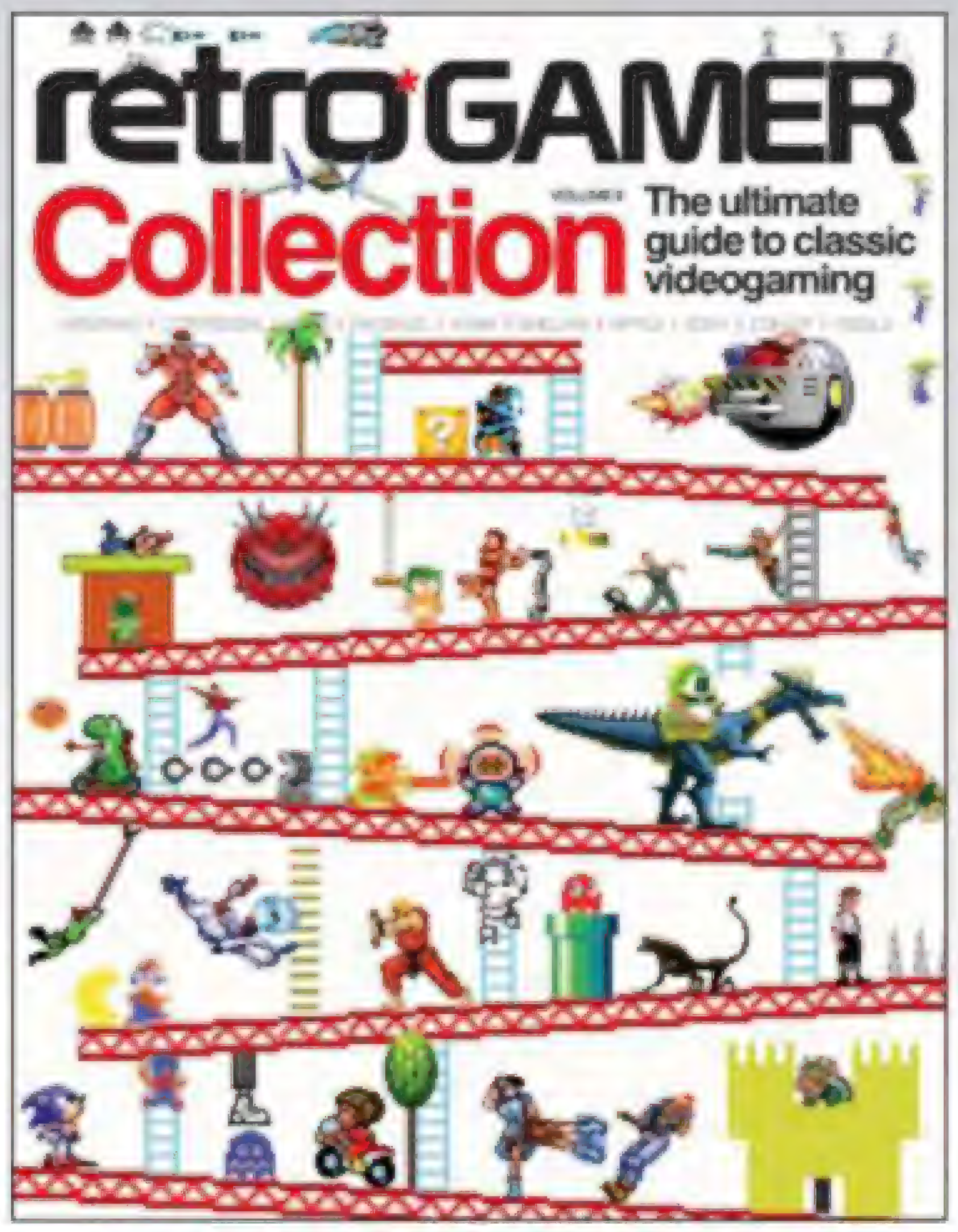
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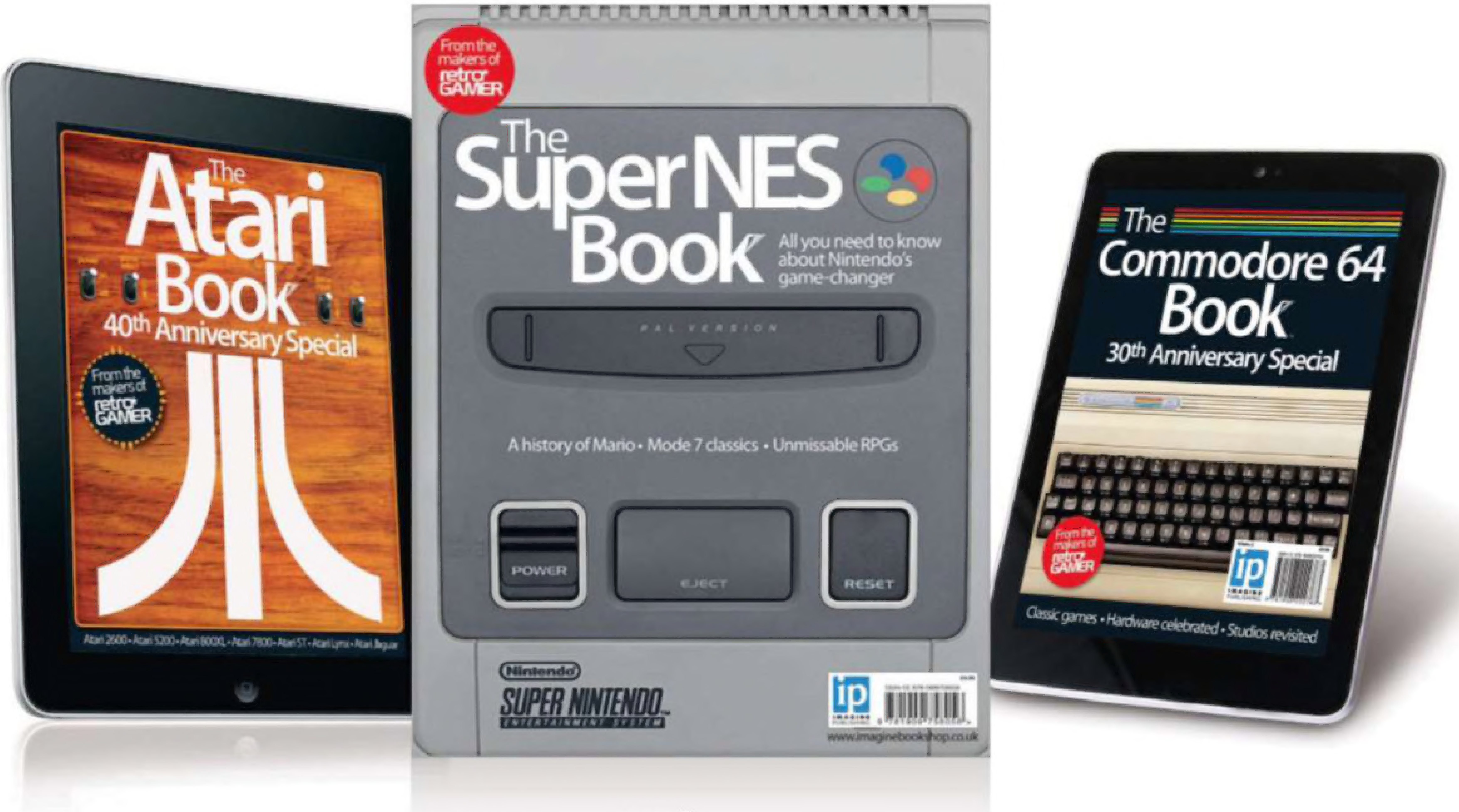
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